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ABSTRACT

The Education Council Act of 1991 Established the National Education Commission on Time and Learning as an independent advisory body and called for a comprehensive review of the relationship between time and learning in American schools. The commission's report, released in May 1994, found that school reform is destined to founder unless programs provide time for learning. This document is a supplementary volume to the first report, summarizing research and suggesting an agenda for further research. Section I, comprised of four chapters, summarizes research findings considered by the commission. These chapters review research regarding four of the commission's substantive recommendations: (1) reclaim the academic day; (2) fix the design flaw; (3) keep schools open to meet the needs of children and communities; and (4) give teachers professional time and opportunities. The second section outlines a number of critical questions asked by the commission for which little or inadequate information was available. It returns to the four major concerns of the preceding chapters and specifies further information needed in these areas. Two figures are included. (Contains 116 references.) (LMI)

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PRISONERS OF TIME

ED 378 685

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What we know and what we need to know

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Report of the National Education Commission on Time and Learning

EA 026 453

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PRISONERS OF TIME RESEARCH

What we know and what we need to know

Cheryl M. Kane

September 1994

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LETTER OF TRANSMITTAL

September 1994

The Honorable Albert Gore
President
United States Senate

The Honorable Thomas S. Foley
Speaker
United States House of Representatives

The Honorable Richard W. Riley
Secretary
United States Department of Education

Gentlemen:

Public Law 102-62 (The Education Council Act of 1991) established the National Education Commission on Time and Learning as an independent advisory body and called for a comprehensive review of the relationship between time and learning in the nation's schools.

The legislation established a nine-member Commission (three each to be appointed by the Secretary of Education, the President of the Senate, and the Speaker of the House of Representatives) and directed it to prepare a report on its findings for the American people within two years of its first meeting.

That report, Prisoners of Time, *was released in May 1994 amidst widespread public and editorial approval. It contained several straightforward messages. Learning in America is a prisoner of time. Times have changed, and the nation's schools must change with them. We have been asking the impossible of our students — that they learn as much as their foreign peers while requiring them to spend only*

half as much time in core academic subjects. The reform movement of the last decade is destined to founder unless it is harnessed to more time for learning. Time is the unacknowledged design flaw in American schools.

When Prisoners of Time *was released, the Commission, whose legislative mandate expires in September 1994, asked its staff to prepare a supplementary volume summarizing the research reviewed by the Commission members as they developed their recommendations, and also to suggest an agenda for further research into important questions on which the Commission had found little or inadequate information. I am pleased to enclose the results for your consideration, and to express the Commission's gratitude for the work of Cheryl M. Kane, the director of our research efforts and the author of this volume. The Commission believes that learning from research — that which is now available and that which has yet to be done — can greatly assist American schools and school districts in raising the quality of learning for all children.*

With this volume, the work of the National Education Commission on Time and Learning draws to a close. I know I speak for every member of the Commission in expressing our gratitude to each of you for your support of our work.

John Hodge Jones

John Hodge Jones,
Chairman
National Education Commission on Time and Learning
Superintendent
Murfreesboro City Schools, Tennessee

COMMISSION MEMBERSHIP

John Hodge Jones, Murfreesboro, Tennessee — Jones is Commission Chairman and School Superintendent in Murfreesboro, Tennessee. Under his leadership, the school system has implemented a nationally recognized extended day/year program.

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EXECUTIVE DIRECTOR

Milton Goldberg is Executive Director of the Commission. He was executive director of the National Commission on Excellence in Education, which produced the landmark report, *A Nation At Risk*. He has held a variety of teaching and administrative positions.

INTRODUCTION

On May 5, 1994, after two years of intensive study, the National Education Commission on Time and Learning (NECTL) issued its report, Prisoners of Time.

> *Time is the missing element in our great national debate about learning and the need for higher standards for all students. Our schools and the people involved with them — students, teachers, administrators, parents, and staff — are prisoners of time, captives of the school clock and calendar. We have been asking the impossible of our students — that they learn as much as their foreign peers while spending only half as much time in core academic subjects. The reform movement of the last decade is destined to founder unless it is harnessed to more time for learning.*

As a result of its study, the Commission offered eight recommendations to the nation:

1. Reinvent schools around learning, not time.
2. Fix the design flaw. Use time in new and different ways.
3. Establish an academic day.
4. Keep schools open longer to meet the needs of children and communities.
5. Give teachers the time they need.
6. Invest in technology.
7. Develop local action plans to transform schools.
8. Share the responsibility. Finger pointing and evasion must end.

The purpose of this document is to respond to two equally vital matters central to the role of the Commission. The first is to provide a summary of the research reviewed and taken into account by Commission members as they developed the recommendations in Prisoners of Time. The second is to provide an agenda for further research into questions of educational practice, questions on which the Commission found little or inadequate information, but which urgently require answers if the ultimate goals of the Commission and Goals 2000 are to be achieved.

Chapters one through four reflect the first purpose: to summarize research findings considered by the Commission. These chapters review research regarding the Commission's substantive recommendations: (1) reclaim the academic day, (2) fix the design flaw, (3) keep schools open longer to meet the needs of children and communities, and (4) give teachers the professional time and opportunities they need to do their jobs. The limited amount of research available on the subject of technology, the Commission's recommendation number six, is included in chapter two of this document. The Commission's recommendations one, seven, and eight call for action and are therefore not covered in this review of the research.

The summary of key research findings in the first four chapters of this document is designed to provide those who are involved in reform initiatives with access to information about time and learning. Each week, the Commission staff received calls from individuals around the country asking what research has to say about a wide range of topics. The inquiries came from a variety of audiences including legislators, school board members, parents, teachers, the business community, and state department of education personnel. While the Commission did

receive calls from researchers, most of the calls came from individuals outside the research community.

In the majority of cases, callers were considering making changes in schools or changes in policy that affected schools. They wanted to have as much information as possible to inform their decisions.

Some of the answers to their questions are provided in the Commission's report, Prisoners of Time. Although the Commission's report provides considerable information to support its conclusions and recommendations, it is not intended to be a summary of the extensive research and other information analyzed during its preparation. The Commission, therefore, asked for a report summarizing research findings on questions addressed during the course of its work.

It should be noted that the first four chapters do not reflect the full range of input gained from the numerous public hearings conducted throughout the country or the results of independent work by individual Commissioners. Unlike Prisoners of Time, this report was prepared primarily by the Commission staff and has not been reviewed and approved by all members of the Commission.

In contrast to Section I, Section II, "Agenda for Research: Unanswered Questions," outlines a number of critical questions asked by the Commission for which little or inadequate information was found. It returns to the four major concerns of the preceding chapters and suggests what more needs to be known about reclaiming the academic day, fixing the design flaw, keeping schools open longer, and giving teachers the time they need to do their jobs. It is the Commission's hope that appropriate agencies of the federal government, foundations, institutions of higher education, other organizations, and scholars will agree on the urgency and address them through research and development.

In an important sense, this document reflects the complexity of the problem of deciding exactly what to do to improve our schools. As the Commission learned, there are no simple recipes for improvement. However, there is much that can be learned from research as individual schools and districts craft plans for getting closer to where they want to be. Together with Prisoners of Time, this document provides a basis for individuals and groups throughout the nation to engage in a debate similar to that of the Commission, to decide individual by individual, organization by organization, what must be done to improve our schools.

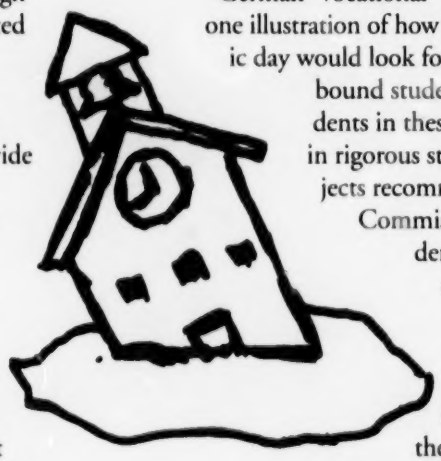
SECTION I

SUMMARY OF RESEARCH

CHAPTER ONE

Reclaim the Academic Day

One of the most startling findings of the National Education Commission on Time and Learning (hereafter referred to as the "Commission") is that students in many other industrial democracies are expected to take twice as much instruction in core academic areas during high school as students in the United States. This finding, along with other research information, led the Commission to recommend that schools provide additional academic time by reclaiming the school day for academic instruction.



What does it mean to "reclaim the academic day"? Logistically, it means providing at least 5.5 hours of core academic instructional time daily. That time is to be devoted exclusively to the core academic subjects: English and language arts, history, mathematics, science, civics, geography, the arts, and foreign languages. Other worthwhile activities, such as remediation and enrichment activities, athletics, extracurricular activities, study halls, and health and social services are to be accommodated before or after the core academic school day.

Philosophically, reclaiming the academic day means providing all students with the opportunity to develop a strong foundation for their lives as workers, citizens, and cultivated individuals. It means developing skills, understanding, and perspectives which can be applied in all aspects of one's life. It means learning how to think and act intelligently in a complex world.

The academic day must be reclaimed for all students, not just the college bound. In a modern economy and a democratic society, it is just as important for students who have usually been placed in vocational or general programs to develop knowledge and thinking skills through a study of the core subjects as it is for students who have traditionally followed college preparatory programs.

German "vocational" programs provide one illustration of how a reclaimed academic day would look for the non-college bound student. German students in these programs engage in rigorous study of the core subjects recommended by the Commission. German students interested in auto-mechanics, for example, learn sophisticated mathematics and science. They study the theoretical and technical aspects of auto-mechanics as well as learn a foreign language, which often is used to decipher complex technical manuals written in other languages.

This chapter will address a number of questions. Is student performance so poor that we should be worried about the amount of time spent studying academic subjects? What have we learned from the movement to increase academic course offerings during the 1980s? Why must we give serious consideration to the issue of time for academic learning if we expect students to achieve the high standards being set throughout the country? How much time do we actually provide for academic learning in U.S. elementary and secondary schools? What is the critical piece of information we have missed in international comparisons?

IS STUDENT PERFORMANCE SO POOR THAT WE SHOULD BE WORRIED ABOUT THE AMOUNT OF TIME SPENT STUDYING ACADEMIC SUBJECTS?

There are those who argue that our schools are doing a good job — that the problem is not what the schools are doing, but rather an increasingly diverse and disadvantaged student body. Others argue that overall we are doing about as well as we ever have and point out that test scores in reading, mathematics, and writing, as measured by the National Assessment of Educational Progress (National Center for Education Statistics [NCES], 1993a), have remained basically stable over the past two decades. Still others argue that we cannot be concerned about how our students perform when compared to students in other countries because our society and culture are different.

Yet, one conclusion is inescapable: the public perception of the quality of education in our schools is not favorable. There is an increasing concern about the ability of our educational system to prepare students to be productive workers and competent citizens. For example, in a 1993 Gallup Poll, only 19 percent of the public gave a grade of "A" or "B" to the public schools while 21 percent gave them a "D" or "F" (Elam, Lowell, & Gallup, 1993). Another nationally representative poll conducted in 1993 by Parade Magazine found that 63 percent of Americans rate the quality of public education as poor or fair (Clements, 1993).

Is the public on target in its assessment of the schools? Indicators from a variety of perspectives can be examined. For example, if we look at international comparisons of the performance of students in the United States, we find evidence such as the following:

- During the 1990-91 school year, the United States ranked ninth out of 10 countries in mathematics achievement and eighth out of 10 countries in science achievement (Organization for Economic Co-operation and Development [OECD], 1993).
- The 1991 International Assessment of Educational Progress found that the gap in mathematics achievement between French and American 13 year-olds was about 1.5 U.S. grade equivalents (Bishop, 1993).
- A study of Chinese, Japanese, and American elementary school mathematics classrooms found "the highest-scoring American classroom obtained an average score lower than that of the lowest-scoring Japanese classrooms and of all but one of the 20 classrooms in China." There was no specific area of the curriculum in which American children were competitive with those from China. Chinese children were particularly superior in performing more complex tasks that involved the application of knowledge as opposed to simple computation (Stevenson & Stigler, 1992).

Another way of looking at how well students in the United States are doing is to compare their current performance with their past performance. Consider the following:

- There appears to be a trend toward increased illiteracy; the literacy level of a nationally representative group of young adults aged 21 to 25 in 1992 was 11 to 14 points lower than a comparable age group tested eight years earlier (Kirsch, Jungeblut, Jenkins, & Kolstad, 1993).
- The National Assessment of Educational Progress has assessed what students know and can do in reading, writing, science, mathematics, and other subjects for over 20 years. Generally, the evidence shows that there has been little overall change in student proficiency in these areas (National Center for Education Statistics [NCES], 1993a).
- One study found local employers and 2- and-4 year colleges and universities were "singularly unimpressed with any changes in students over the years of reform [during the 1980s],...were unaware of the tighter graduation requirements and noted no particular increase in student preparedness" (Wilson & Rossman, 1993, p. 188).

A third way of examining the performance of our students is to ask how well they should be doing. In 1988, Congress established the National Assessment Governing Board (NAGB) and directed it to develop "achievement levels," which are collective judgments about how students should perform in a subject area. NAGB established three levels of achievement:

1. The basic level "denotes partial mastery of the knowledge and skills fundamental for proficient work at each grade."
2. The proficient level "represents solid academic performance and demonstrated competence over challenging subject matter."
3. The advanced level "signifies superior performance" (Mullis, Campbell, & Farstrup, 1993, p. 12).

NAGB set the "Proficient Level" at a point which it felt all students should reach. How many of our students reached the Proficient Level? In mathematics, 25 percent or fewer students in grades 4, 8, and 12 achieved at the proficient level (Mullis, Dossey, Owen, & Phillips, 1993). In reading, 25 percent of students in grade 4, 28 percent of students in grade 8, and 37 percent of students in grade 12 were found to be at the proficient level (Mullis et al., 1993).

States which have adopted assessment systems that measure student performance in terms of how well they should be doing have found results comparable to NAGB. For example, in 1994, students in California took the California Learning Assessment System tests which measures the extent to which students are meeting academic standards set by the state. At least one third of students tested in each grade demonstrated little or no understanding of basic math concepts; 30 percent of sophomores demonstrated only a superficial understanding of what they read; and the majority of students in each grade tested wrote incoherently and made frequent errors in spelling, grammar, and punctuation (Merl, 1994).

Is student performance so poor that we should be worried about the amount of time spent studying academic subjects? If we believe our students should be competitive with other countries, the answer is yes. If we believe the schools of today should be doing better than the schools of the past, the answer is yes. Finally, if we would like to see students who are able to do what they should be able to do, the answer is yes.

WHAT HAVE WE LEARNED FROM THE MOVEMENT TO INCREASE ACADEMIC COURSE OFFERINGS DURING THE 1980S?

More than 10 years ago, the National Commission on Excellence in Education released its report, A Nation at Risk, which noted that secondary school curricula have been "homogenized, diluted, and diffused to the point that they no longer have a central purpose" (National Commission on Excellence in Education [NCEE], 1983, p. 18). That commission recommended that states strengthen high school graduation requirements by requiring all students to take the "Five New Basics": four years of English; three years of mathematics; three years of science; three years of social studies; and one-half year of computer science.

After the release of A Nation at Risk, one of the most visible and talked about activities at the state level centered around increasing high school graduation requirements. By requiring students to take more courses in academic subjects, they would have more time and an increased opportunity to learn. In 1980, 37 states defined minimal graduation requirements. By 1990, 43 states had done so.

Despite all the apparent activity at the state level, it is important to note that overall, only minor changes were made in the number of credits students were actually required to take. In 1980, the average number of credits required for high school graduation was 17.40. By 1990, the average number of credits required had increased to 19.76, an increase of less than 9 percent (Wilson & Rossman, 1993).

What difference did these state requirements make in the academic lives of students? Did large percentages of students

find themselves taking calculus, Shakespeare, and physics? Did all students reap the benefits?

In Mandating Education Reform, Wilson and Rossman (1993) outline what they and a number of other researchers have found to be the answers to these questions. First, after states raised graduation requirements, schools within their boundaries offered more academic courses, particularly in mathematics and science. Second, more students were actually enrolled in the courses.

These findings are confirmed by data from the National Center for Education Statistics (NCES), which found that the percentage of all graduates completing the minimum academic courses recommended in A Nation at Risk (four years of English, three years each of mathematics, science, and social studies) increased from 13.4 percent in 1982 to 39.8 percent in 1990. But this minimum does not include the half year of computer studies also recommended in A Nation at Risk. With that taken into account, the percentage of completion falls to 22.7 percent. Nor does it include the two years of foreign language recommended in A Nation at Risk for those students going on to college. In 1990, only 17.3 percent of high school graduates took the entire curriculum suggested in A Nation at Risk.

In addition, it is important to note that the NCES statistics reported here are based on high school graduates. Therefore, when NCES reports that 39.8 percent of students are taking the minimum academic program prescribed in A Nation at Risk, that means 39.8 percent of those who have finished high school. It does not include the students who dropped out of school or those who stayed in but never satisfied the requirements of the diploma. If dropouts were included, obviously the percentage of age-group students taking the minimum would be lower than 39.8 percent. Whatever statistic is used, the nation is far from the goal of having all students taking these core academic courses.

NCES (National Center for Education Statistics [NCES], 1993b) also collected information about the effects of state requirements for graduation on schools. As indicated earlier, A Nation at Risk recommended a core curriculum called the "Five New Basics." Some states mandated that students complete most of these courses. Other states required fewer courses than had been called for in A Nation at Risk. If we look at the percentage of students in 1990 who completed the courses recommended by A Nation at Risk, we find that a much higher percentage of students (48.40 percent) actually completed the courses in states with higher requirements than did students (33.14 percent) in states with lesser requirements. These statistics suggest that what states require does make a difference.

Another important finding reported by Wilson and Rossman (1993) is that most of the new classes offered as a result of increased state mandates for high school graduation were lower level, remedial, or basic rather than advanced and rigorous. Wilson and Rossman (1993, p. 184) observe "a need on the part of local educators to move students through the system, even at the expense of 'watered down' courses...thus, more students are taking more basic academic courses but are not being exposed to the more rigorous and challenging offerings that stress higher-order thinking skills."

Wilson and Rossman (1993) also examined the effects of the new graduation requirements on minority and at-risk youth. They found that even with the increased requirements, minority youth earned fewer total credits, enrolled in fewer advanced courses, failed more courses, and earned more practical arts credits. For example, white students enrolled in advanced courses between 1.5 and 2 times as often as African-Americans.

What have we learned from the movement to increase academic course offerings during the 1980s? First, states did increase their high school graduation requirements, but not by very much. Second, only 39.8 percent of high school graduates in 1990 took the minimum curriculum judged to be essential 10 years ago. Third, while disadvantaged and minority students are taking more courses labeled "academic," there is some evidence that we should be concerned about the rigor of these additional courses.

Fourth, when states set high requirements for graduation in core courses, more students take the courses than if the higher requirements were not set.

It appears that increased state requirements are necessary, but not sufficient to cause improvement in student learning. They are necessary because they set the parameters of what subjects are to be taught. They are not sufficient because the quality and rigor of what is taught in the mandated courses varies so widely from place to place and school to school.

WHY MUST WE GIVE SERIOUS CONSIDERATION TO THE ISSUE OF TIME FOR ACADEMIC LEARNING IF WE EXPECT STUDENTS TO ACHIEVE THE HIGH STANDARDS BEING SET TODAY?

In contrast to the reform movement of the 1980s, which specified increased graduation requirements, today's reform initiatives emphasize the development of standards. Increasing graduation requirements during the 1980s signaled a need for additional time to be devoted to academic subjects. The standards movement, which ultimately hopes to define what students at different stages in their education should know and be able to do, will help guide schools in how time could be better used. In 1994, 45 states were planning, developing, or implementing standards (Viadero, 1994).

Part of the motivation for standards has come from unfavorable international comparisons of American and foreign students' academic achievements. Part has come from employers who require better prepared workers and from colleges and universities that find students unprepared for rigorous study. There also is an increasing awareness that we are not clear in this country about what schools should be teaching. The lack of clarity has resulted in a lack of focus. Everything is a priority and nothing is a priority.

Teachers also feel the need to focus and be clear about what they expect their students to accomplish. A 1993 national survey (Louis Harris and Associates, 1993, p. 7) of teachers' opinions found that 80 percent of teachers strongly support national content standards, i.e. what students should know and be able to do.

While, at this point in their development, we do not know exactly what the standards will look like, we expect them to be rigorous. Students will be expected to know more and be able to do it better. They also will be expected to develop higher-order thinking skills which are often underemphasized in our nation's schools.

Available evidence suggests that more time will be required if students are to meet the standards. Lauren Resnick, a leading researcher on student learning, describes the kind of learning that needs to take place as "time-expensive." Resnick states, "The personal mental elaboration that is necessary for successful learning takes time — much more time than is typically allowed for the study of any topic in the school curriculum" (Resnick, 1992, p. 3).

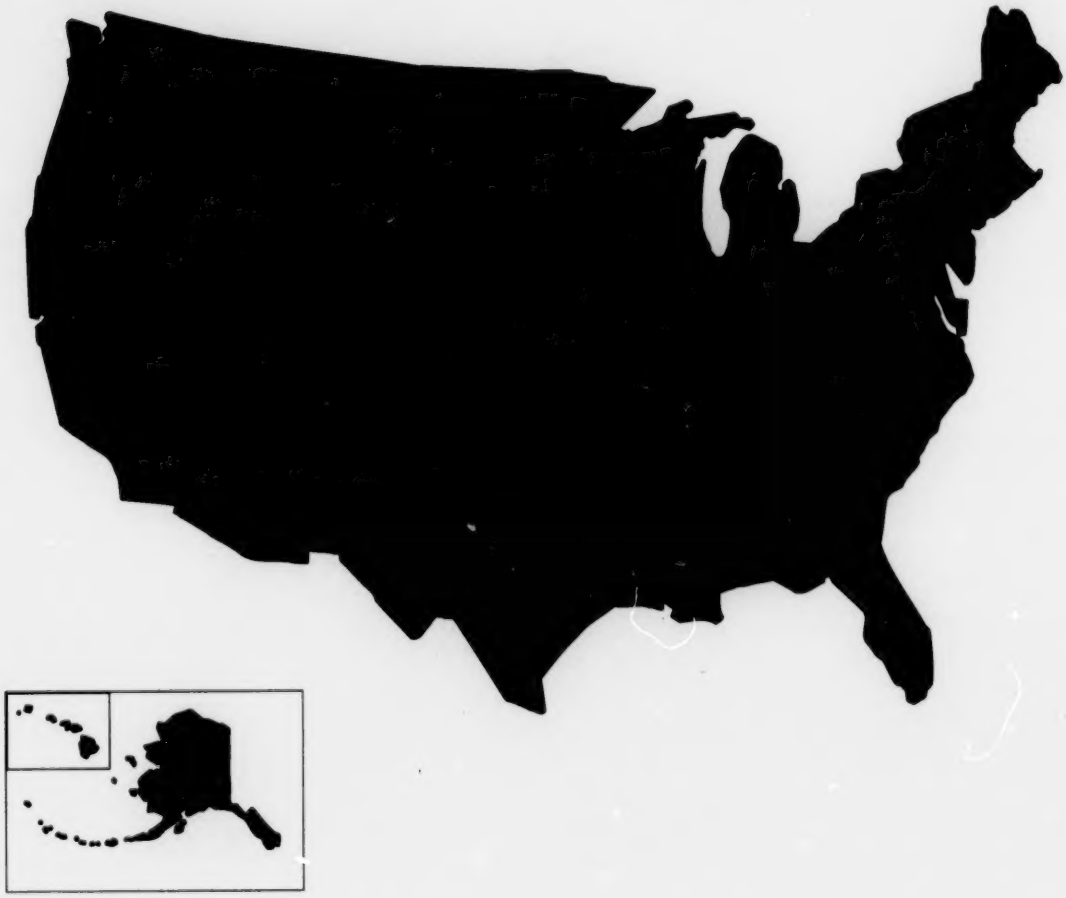
The leaders of the groups developing standards in different content areas also agree that more time will be needed if students are expected to learn to the levels desired. David Florio of the National Science Foundation reflects the views of other standards setting groups when he says, "There is a consensus view that new standards will require more time" (NECTL, 1993).

Support for setting standards that will improve the academic performance of students can be found in a number of sectors. At the federal level, both the Bush and Clinton administrations have worked to articulate six National Education Goals and to encourage voluntary learning standards and performance assessments. At the state level, there is a movement to place increasing emphasis on results in terms of student performance. School districts across the country have launched a variety of initiatives.

Yet, while public interest in reform appears to be high, much work remains to be done. A 1994 survey of all regionally accredited public and private high schools across the nation concluded that the rate of reform in the nation's high schools "overall is

FIGURE 1

EXISTENCE OF STATE TIME REQUIREMENTS AND RECOMMENDATIONS FOR CORE ACADEMIC SUBJECTS AT THE PRE-HIGH SCHOOL LEVEL (K-9)



Time requirements for core subjects for any set of grades within K-9 (10 states)

Time recommendations for core subjects for any set of grades within K-9 (8 states)

No time requirements or recommendations for core subjects (32 states)

highly variable" and "sluggish with the more traditional institution still dominant" (Cawelti, 1994, p. 66). While there is a great deal of "activity" in schools, "few high schools report the kinds of comprehensive, systemic restructuring that may be needed to make a major impact on student achievement" (ERS News Alert for Education Editors, 1994).

HOW MUCH TIME DO WE ACTUALLY PROVIDE FOR ACADEMIC LEARNING IN UNITED STATES ELEMENTARY AND SECONDARY SCHOOLS?

How states and schools decide to use the time students are in school is a question of priorities, a question of what we think is important. What we, as a nation, think is important for students to do with their time in school differs at the elementary and secondary levels and state by state.

The Commission's studies of state requirements illustrate these differences. The Commission contacted state departments of education and asked them to provide materials that documented their rules and regulations for the use of time in schools. The materials were analyzed to verify information gathered from key state officials during telephone conversations.

While there were variations across states, clear patterns were evident. The most striking pattern was found at the secondary level, where states requirements are set through high school graduation credits expressed in Carnegie Units. Through Carnegie Units, states require that students take specified numbers of courses in subjects such as English, mathematics, and science in order to graduate. Although the Carnegie Units do not control the level of rigor of courses students must take, they are intended to insure that all students will, at a minimum, be exposed to instruction in certain subjects for specified amounts of time.

The Commission's analysis revealed that an average of 41 percent of students' time over four years of high school is required to be spent studying the courses defined as core by the Commission: English/language arts, mathematics, science, history, geography, civics, foreign language, and the arts. The remaining amount of time was available for electives, which were not defined. In other words, during the four years of high school, states permit significantly more time to be spent on electives than on core academic subjects.

This is not to say that electives have no value. Clearly, some students in some schools are given an opportunity to take challenging and useful electives. However, there are no guidelines for the topics students encounter in elective courses. A motivated student with effective guidance may take rigorous electives in core academic subjects. Many other students do not.

While state graduation requirements are only part of the picture, they are an important statement of what our states, which have the legal responsibility for education in this country, think is important for students. Given the evidence, it is difficult to argue that states communicate the importance of placing a strong focus on academic subjects.

While states influence the use of time at the secondary level through Carnegie Units, they also may provide requirements for grades prior to high school. The Commission collected information about the extent and nature of states' time requirements and recommendations. Figure 1 graphically depicts the Commission's findings. Using the data provided by states, the Commission found that 10 states established time requirements for core subjects in various sets of grades K-9; eight provided time recommendations, while the other 32 states and the District of Columbia had no time requirements or recommendations for core subjects.

Across states with time requirements or recommendations, there appears to be a consistent common core of subjects which receive most of the allocated time. This core is comprised of English, mathematics, science, social studies, the arts, and health and physical education. Recommendations and requirements exist almost exclusively in these subjects.

Some states with time requirements or recommendations leave significant blocks of

time unallocated, allowing time to be used in either core or non core subjects at the discretion of the districts or schools. The percentages of instructional time not allocated to specific subjects ranges from 2 to 50 percent. Five states leave no time unallocated; five leave less than 15 percent of time unallocated; and the remaining eight states leave more than 15 percent of time unallocated.

The Commission also found a general movement away from specifying how time should be used. A few states have abolished time requirements over the past several years. These states tend to adopt strategies of specifying desired results and giving schools and districts the responsibility of devising plans to achieve those results.

WHAT IS THE CRITICAL PIECE OF INFORMATION WE HAVE MISSED IN INTERNATIONAL COMPARISONS?

There has been an increasing interest in how much time students in the United States spend in school compared to their counterparts in other countries. If we expect our students to perform academically as well as students in other countries, are we allowing our students enough time to do it?

Different people have answered this question in different ways. Some people have pointed to the fact that Japanese and Chinese children spend a greater total amount of time in school than American children (Stevenson & Stigler, 1992). One study found that Chinese children who have completed sixth grade have spent the equivalent of one to two years longer total time in elementary school than American children (Stevenson & Stigler, 1992). Another study found that Japanese students in senior high school spend approximately 60 percent more total time in school per week than American students (Juster & Stafford, 1991).

If we use statistics on the total amount of time students spend in school in other countries, we might logically conclude that students in the United States are at a disadvantage because they do not spend as much time in school where formal academic learning takes place.

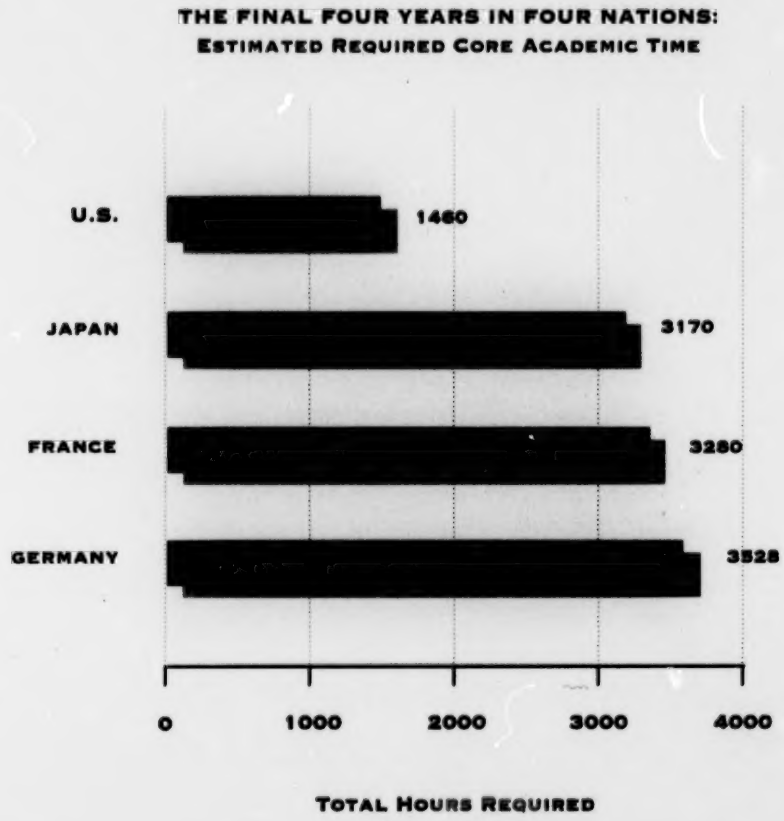
Other people have taken the analysis on a different tack and said it is not important how much time students spend in school. What is important is how much time students spend in classroom instruction. Recent data available tell us that 13-year-old American students actually spend more instructional time in the classroom than students in Japan, Canada, England, Italy, Korea, and Germany (NCES, 1993a). Therefore, although students in a country like Japan actually spend more total time in school than American students, they spend less time than our students in classroom instruction.

If we use statistics on the amount of instructional time students in this country receive versus the amount students in other countries receive, we might logically conclude that we do not need to provide more time for student learning in the United States. If American students already are spending more instructional time than students in other countries, the solution to our relatively poor academic performance as a country must lie elsewhere.

The Commission, however, took the analysis one step further by asking how American students spend their instructional time as compared to students in other countries. What courses do they take and how much time do they spend in these courses? Are American students provided with the same amount of time to learn academic subjects as their peers elsewhere? Information about these questions was gathered through site visits to German and Japanese schools, discussions with leading government officials, and analyses of official documents from those countries and France.

Figure 2 depicts the Commission's findings when it examined how much time students in their final four years of schooling, the equivalent of our grades 9-12, are required to spend studying the core subjects. The Commission estimated that French, German, and Japanese students are expected to spend more than twice as much time on core academic subjects as their American counterparts. It is because our students have the flexibility to take large amounts of non

FIGURE 2



2 Sources: United States estimate developed from The Digest of Education Statistics (NCES, 1992), State Education Indicators (Council of Chief State School Officers, 1990), and the commission's review of academic requirements in 41 states and the District of Columbia. The estimate for Japan was developed from Monbusho (1993 publication of the Japanese Ministry of Education, Science and Culture) and site visits to Japanese secondary schools, and confirmed by senior Japanese ministry officials at a meeting in Washington. The estimate for France was developed from a French publication, Organization of the French Educational System Leading to the French Baccalaureat, and confirmed by French officials. The German estimate is actually the number of hours of required coursework for one state, Berlin.

academic courses such as drivers education and life skills education that our students have more instructional time, but less academic time.

A critical piece of information that has been missed in previous studies, then, is how much time students spend studying academic subjects. The Commission realizes that other factors, such as the quality of instruction and student motivation are also critical.

But not to provide the basic ingredient of time for academic study is to fail to provide an opportunity to learn. Without time, other favorable factors have no effect. Studies of productivity confirm the importance of providing time for learning. They suggest that the amount of time students are engaged in learning has a powerful and consistent effect on the amount of learning that takes place. (Walberg, 1988).

In addition, the Commission found illustrations of the effects of allocating additional instructional time on student achievement. One researcher (Bishop, 1993) noted the

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following two examples:

1. *Americans get considerably more language arts instruction in primary school than students in Europe and this probably accounts for the very strong reading achievement of American 9-year-olds. In ninth grade, however, language arts instruction is allocated less time than in Europe and by this grade the American advantage in reading ability has disappeared* (Bishop, 1993, p. 9).
2. *In 1971, Dutch teachers allocated only...7 percent of time in 9th grade to science, and student performance levels were substantially below those in the U.S. and Britain. U.S. achievement levels exceeded Dutch achievement levels by one-third of a standard deviation. In 1982, however, the Netherlands spent a remarkably high 25 percent of 9th grade instruction time on science (compared to 20 percent for the U.S. and 10 percent in England). As a result, science achievement in the Netherlands was more than one-half of a standard deviation higher than for English and American students* (Bishop, 1993, p. 9).

If we choose to provide our students with the same opportunity to master academic subjects as students in other countries, research suggests we need to reclaim the academic day. Currently, there is not enough room in our crowded school days to focus on achieving rigorous academic standards.

The answer lies in the ability to set priorities and to adhere to them. As with any scarce resource, we must treat time with respect and allocate it wisely. This entails emphasizing a rigorous curriculum grounded in the traditional disciplines of English, mathematics, science, history, geography, civics, the arts, and foreign languages to the exclusion of peripheral activities during the core six-hour school day (NECTL, 1994).

It is clear that any campaign to safeguard the academic day is likely to encounter well-entrenched resistance. As one author notes, "in its quest for the well-rounded student, American society [has] steer[ed] the attention of students away from academics" (Loyd, 1991, p. 62).

At the same time, both the public and educators are becoming increasingly sensitive to the priorities we have established for the use of students' time in school. A nationally representative poll of public attitudes reported that 55 percent of the public believes that schools place too much emphasis on sports (Clements, 1993). A survey by the Missouri Association of Secondary School Principals found that students were missing as many as seven days of school to sports and to club activities: "Time lost to extracurricular activities has become a universal complaint." They made the following specific recommendations to safeguard academics:

- *Schedule special activity days outside the regular school calendar during which many events can take place simultaneously.*
- *Introduce a summer sports season and reduce sports schedules and travel time during the regular school year.*
- *Ensure that "extra" activities are not scheduled during exam weeks at the end of semesters* (Lindecke, 1990, p. 27-28).

Common sense suggests that practices such as these eliminate the need to make absolute trade-offs between academics and extracurricular activities. The Commission argues that we must distinguish more clearly between the core academic day and the potentially longer school day. In the former, instructional time for core academic subjects must be protected. In the latter, time can be used for the additional academic time some students need as well as for enriching extracurricular learning. This will be discussed more fully in Chapter 3.

CHAPTER TWO

Fix the Design Flaw

In Prisoners of Time, the Commission recommends that we "fix the design flaw" in American schools and that "state and local boards work with schools to redesign education so that time becomes a factor supporting learning, not a boundary marking its limits" (NECTL, 1994, p. 31). Fixing the design flaw requires changes in how we organize teaching and learning so that all students are given the time necessary to succeed to high levels, something that is not possible in the existing system.

A story from Greek mythology about a cruel character named Procrustes is a good basis for beginning to understand what the Commission meant by the "design flaw" in schools. According to legend, when travelers sought lodging at Procrustes' house, he would tie them to an iron bed. If they were too tall to fit perfectly in the bed, their limbs would be cut off. If they were too short for the bed, their bodies would be stretched to fit. In Procrustes view, the length of the bed was the important factor and all travelers were required to conform to the bed regardless of their individual physical differences.

The use of time in American schools has been described as a modern-day example of a Procrustean bed. Harold Howe summarizes the view as follows:

> *Consider what we do to students in school even though we know they are very different from one another when they start school and will become even less alike as they pursue learning. We insist that students achieve their learning in the same amount of time regardless of their differences. Then we tell them that those who succeed in this amount of time are worthy and those who don't are failures* (Howe, 1993, p. 135-136).

This chapter will expand on the insights into time use suggested by the myth of the Procrustean bed. It is about the quality of time use in our schools and the conditions that contribute to making the best possible use of the time that is available. A number of questions will be addressed. What is the design flaw and how serious is it? Do the way schools use time cause them to be inherently inequitable institutions? Why must we re-examine the way schools are structured by grades? What are some of the teaching practices in American schools that contribute to the negative effects of the design flaw?

In reviewing the research related to these questions, it is important to note that when the design flaw is discussed, it is in reference to restructuring schools for student learning. It is about using the resources, including time, that are currently available to schools in more rational and productive ways.

WHAT IS THE DESIGN FLAW AND HOW SERIOUS IS IT?

At the heart of the design flaw is the conflict between our current uses of time and our desire for successful learning by all students. The way time is used in schools may be the most significant structural barrier to student learning.

Schools place children in grades by age and give each one the same amount of time to learn the subjects before them. Like uniform and standard pieces of raw material in a factory assembly line, students are "batch processed." First they are "sorted" by age and then they are moved through the educational system in periods of equal time.

Yet, we know that the amount of learning that takes place in a given period of time varies dramatically with individual students (Walberg, 1988). Because they have different learning styles, different aptitudes, and differing levels of motivation, students learn at different rates. Figures vary, but most show some students may need between three and six times more time to learn than others.

Studies also indicate that differences in required learning time increase as slower students progress through the curriculum. One researcher notes:

> *A student who begins a learning sequence by performing poorly on the first step performs even more poorly on the second step because he lacks some of the prerequisites. Without extra time to restudy these prerequisites, he misses more prerequisites at each successive step, becoming progressively farther behind. So the academically rich get richer and the academically poor get poorer* (Arlin, 1984, p. 67).

On the opposite end of the educational spectrum are those children who seem to learn most quickly, the students many schools label "gifted and talented." Those students also suffer when they are "batch-processed," since they grow easily bored when their abilities are not challenged.

Accommodations for gifted and talented students seem the exception rather than the rule in American schools. Research has found that "the large majority of gifted students across this nation spend all but two or three hours per week in regular classrooms" and that only minor modifications are made to meet their needs (Archambault et al., 1991, p. 1-2). A study of third and fourth grade classrooms found that 84 percent of the activities in which gifted and talented students participated were the same as those for children of other ability levels (Westberg et al., 1991, p. 19).

More than 30 years ago, John Carroll developed a model that has provided the foundation for much of the research and thinking about time for learning (Carroll, 1989, pp. 26-31). He noted that "the learner will succeed in learning a given task to the extent that he spends the amount of time that he needs to learn the task" (Carroll, 1963, p. 725). Carroll described "the very great variation that exists in the amounts of time that children need for learning" and the fact that schools "may allow less than adequate time for learning any task" (Carroll, 1963, p. 727).

Carroll found that "teachers and instructional programs vary in the amount of time they allow for learning" (Carroll, 1963, p. 727). He noted the following:

> *Some programs present material at such a rapid pace that most students are kept under continual pressure; only the apter students can keep up with this instruction, while the others fall back or out, sometimes never to get caught up. In other programs, the instruction is paced for the benefit of the slower student...many fast learners lose some of their motivation for learning when they feel that their time is being wasted or when they are not kept at the edge of challenge* (Carroll, 1963, pp. 727-728).

Schools will have a design flaw as long as their organization is based on the assumption that all students can learn on the same schedule. The challenge is to devise structures in schools that provide instruction geared to student differences and permit students to learn at their own rates. Students who need more time to learn would receive it, while those that require the challenge of a fast-paced curriculum would be encouraged to move forward.

What kinds of organization should schools consider? One is the creation of non-graded schools, which is discussed in some detail later in this chapter. In non-graded schools, children are taught the curriculum based on their previous achievement levels and readiness for the task at hand rather than being grouped on the basis of their chronological age.

Another option is "continuous progress learning," where students of the same age, but different abilities, are placed in a classroom. Students work individually or in small groups through sequential learning

modules geared to their cognitive level. When they complete a unit and are ready to move on, they do so.

Is the design flaw serious? If we are unwilling to accept the fact that schools are structured in ways that insure failure of significant numbers of children, the design flaw is serious. If we are concerned that many of our most gifted students are not challenged, it is serious. If we want to continue to pay for the results of educational failure, whether it be in the high rates of remedial courses offered by our high schools and colleges, or by the high rate of incarceration in prison by our high school dropouts, it is serious.

DO THE WAY SCHOOLS USE TIME CAUSE THEM TO BE INHERENTLY INEQUITABLE INSTITUTIONS?

Providing equal amounts of time to groups of students who need different amounts of time to learn raises a question about the inherent equity of the current educational system (NECTL, 1993, p. 18). If we provide all students with the same amount of instructional time, we virtually guarantee inequality of achievement (NECTL, 1993, p. 17).

In many respects, disadvantaged or slow learners suffer most, since, if they begin school at a deficit and are unable to master their initial lessons, they tend to fall further and further behind with each successive step. If they do not get the extra time and attention they need to learn, they perform poorly on achievement tests, thereby further jeopardizing their opportunities. The students who exhibit the lowest achievement scores are more frequently poor and/or minority, the groups in our society whose numbers are increasing most dramatically.

The solution to the equity question is paradoxical. In order to get equality of student achievement, we need to provide them with appropriate, and therefore unequal time and opportunities to learn (Carroll, 1989, p. 30). As one author phrased it, "Where ability is concerned, equality consists of providing equally well for all kinds and levels of individual differences" (Passow, 1955, p. 55).

Do the way schools use time cause them to be inherently inequitable institutions? Webster's dictionary defines equity as "a free and reasonable conformity to accepted standards of natural right, law, and justice without prejudice, favoritism, or fraud and without rigor entailing unique hardship" (Webster's Third New International Dictionary, 1986, p. 769).

Are schools conforming to accepted standards of "natural right, law, and justice" when they give all children the same amount of time to learn, when we know that a large percentage of those children require more time to learn? Is an institution that structures itself so that a predictable number of the individuals it serves will fail, acting "without prejudice or favoritism"? If the answer to these questions is "no," then schools, as currently structured, are inherently inequitable institutions.

WHY MUST WE RE-EXAMINE THE WAY SCHOOLS ARE ORGANIZED BY GRADES?

In the majority of schools throughout the country, students are placed in grades according to their age. Slotting students into predetermined grade levels based on the criterion of age assumes students can all be treated uniformly and their individual differences neatly packaged to fit a preexisting structural design.

The idea of rigidly segregating students into grades by age has been challenged from a variety of perspectives. Goodlad and Anderson note: "Evidence from ethnology, anthropology, and educational history and research indicates that age segregation, which is in effect what graded classrooms provide, is neither necessary or natural... age segregation... appears to have far more negative than positive consequences" (Goodlad & Anderson, 1987, p. xxiii).

The idea of organizing students into grades did not take hold in the United States until the mid-1800s. Prior to then, it was not unusual to see students of different ages in the same classroom. One author noted that the graded structure "runs counter to the pattern of upbringing of the young

which previously existed for millions of years" (Pratt, 1993, p. 17).

In its study of time and learning, the Commission concluded that the grade structure found in most of our schools is central to the design flaw. The Commission stated: "Fixing the design flaw means that grouping children by age should become a thing of the past. It makes no more sense to put a computer literate second-grader in Introduction to Computers than it does to place a recent Hispanic immigrant in Introductory Spanish. Both should be placed at their level of accomplishment" (NECTL, 1994, p. 31).

On what basis did the Commission make this recommendation? What does the research say? Two prominent researchers found "an overwhelming preponderance of evidence to support non gradedness in all of its dimensions". They conclude: "There is simply no research that says graded structure is desirable, or, for that matter, that single-age class groupings and/or self-contained classrooms are to be preferred" (Goodlad & Anderson, 1987, p. xxviii).

Anderson and Pavan (1993) provide more detail about studies that have compared the effectiveness of graded and non graded structures. They found the following:

- *Research studies published between 1968 and 1990 most frequently favor non gradedness on standardized measures of academic achievement and mental health.*
- *Boys, blacks, underachievers, and students of lower socioeconomic status were more likely to perform better and to feel more positive toward themselves and their schools in a non graded environment.*
- *The longer students were in non graded programs, the greater the improvement in their achievement scores in relation to ability* (Anderson and Pavan, 1993, p. 53).

If a school were to move to a non graded organizational structure, what would it look like? A non graded structure is described as follows:

- *Each individual works in varied situations where he or she will have opportunities for maximum progress. There are no procedures for retention or promotion, nor any grade levels.*
- *A child's placement may be changed at any time if it is felt to be in the best interest of the child's development considering all five phases of development: aesthetic, physical, intellectual, emotional, and social.*
- *Grouping and subgrouping patterns are extremely flexible. Learners are grouped and regrouped on the basis of one specific learning task and are disbanded when that objective is reached.*
- *Each child should have opportunities to work with groups of many sizes, including one-person groups, formed for different purposes.*
- *The specific task, materials required, and student needs determine the number of students that may be profitably engaged in any given educational experience.*
- *Children should have frequent contact with children and adults of varying personalities, backgrounds, abilities, interests, and ages* (Anderson and Pavan, 1993, pp. xv-xvi).

In non graded schools where students of similar levels of accomplishment are grouped together for purposes of instruction on a particular topic, teachers can be relieved somewhat of the burden of trying to teach students with a wide variety of abilities within one classroom. Currently, in our graded schools, there is great variation in the levels of achievement by students in a particular grade. The National Assessment of Educational Progress (NAEP) found, for example, that "there are 4th graders... who do as well in mathematics as half of 8th graders, and about a fifth of 12th graders" (Educational Testing Service, 1993, pp. 5-6). Based on this finding, "the term 'grade level' is meaningless in the United States, for it tells little about what students know and can do" (Educational Testing Service, 1993, p. 5).

When students are grouped by level of achievement rather than by age and grade, teachers can spend more time delivering instruction to their classes at a pace that is appropriate for all. Furthermore, teachers

can reduce the amount of unproductive independent "seat work" they assign, a practice often unavoidable in classrooms with multiple ability groups, since the teacher cannot work with more than one group at a time (Gutierrez & Slavin, 1992, p. 34).

The primary reason to move from a graded to a non graded structure is for improved learning. Non graded schools provide a structure for children to move through the curriculum at their highest level of capacity. The non graded structure also permits more time for students who are at developmentally different levels and eliminates the diminished self-esteem that results for students who are retained because they have "failed" a grade.

WHAT ARE SOME OF THE TEACHING PRACTICES IN AMERICAN SCHOOLS THAT CONTRIBUTE TO THE NEGATIVE EFFECTS OF THE DESIGN FLAW IN SCHOOLS?

Teachers' instructional methods and classroom management techniques determine how productively learning time is used; that is how much teaching and learning actually occurs in the minutes and hours devoted to the process. It has been demonstrated that some teaching strategies promote more concentrated, efficient learning than do others. This section will summarize the research on five areas: (1) seat work, (2) classroom organization and management practices, (3) rote learning, (4) quality and rigor of textbooks, and (5) uses of technology.

SEAT WORK

Research has consistently found student learning to be enhanced by direct instruction from teachers, as opposed to extensive reliance on individual "seat work" and writing assignments (Gutierrez & Slavin, 1992, p. 34). Classrooms in which students spend long hours on written assignments or silent reading, with little direct input from teachers, are frequently associated with low achievement gains (Walberg, 1991, p. 27).

While the amount of time spent in seat work obviously varies depending on the teacher and the level, there is no doubt that American schools spend a great deal of "instructional time" in this manner. For example, one study of fourth grade mathematics classrooms found that students spent 47 percent of their time alone doing seat work (Walberg, 1991, p. 27). Another study found that students in the reading classes examined spent 66 percent of their time doing seat work while those in the mathematics classes studied spent 75 percent (Rosenshine, 1980, p. 32).

These figures provide a rather disturbing comparison with those from Asian classrooms where students receive much more direct instruction and consistently outperform their American peers on international tests of academic accomplishment. One study that compared similar groups of students in China, Japan, and the United States found large differences between the three countries. In China, teachers were found to be leaders of the child's activities 90 percent of the time, as opposed to 74 percent of the time in Japan, and only 46 percent of the time in the United States (Stevenson & Stigler, 1992, p. 24).

The problem with seat work is that active engagement in the learning process declines dramatically when students are left alone and asked to complete often mundane, repetitive assignments. While performing seat work, they are less inclined to process actively new material. As a result, learning engagement rates — or "time on task" — are likely to decline considerably, resulting in substantial learning losses (Walberg, 1991, p. 32).

CLASSROOM ORGANIZATION AND MANAGEMENT PRACTICES

In this country, schools often permit behaviors that reduce meaningful learning, such as student tardiness, student disruptions, classroom interruptions, assemblies, lack of routine and rules, classes that do not start on time, excessive and redundant testing (Karweit, 1987, p. 26), allowing students to take lengthy breaks between activities, diverging from the focus of discussions, and asking students to wait while their peers

finish assignments (Gaskins, 1988, p. 30). It is not surprising to find that, holding demographic characteristics constant, schools that make better use of in-class time regularly post strong student test scores (Walberg, 1991, p. 27). These students engage in a higher proportion of on-task behavior and interactive instructional time, and teachers in the schools are rated well on clarity of presentations, classroom order, and the effectiveness of their classroom processes.

In what has become the classic study of time on task (Rosenshine, 1980, p. 180), investigators reported that about 60 percent of the school day for second- and fifth-graders was allocated to the study of academic subjects (reading, mathematics, science, and social studies). The researchers also determined the amount of time students in academic classes are actually engaged in learning. They found that second grade students spend an average of about 1 hour and 30 minutes actively engaged in studying academic subjects while fifth grade students spend an average of 1 hour and 55 minutes actively engaged.

A study of elementary school learning time found that (1) waiting occupied 20 percent of class time, (2) general management activities engaged 17 percent of valuable time, and (3) other non-instructional activities took 15 percent of time away from academic study — leaving less than half of class time (47 percent) for actual instruction and learning (Walberg, 1991, p. 27).

Teachers can structure learning time through the use of effective classroom organization and behavior management techniques. For instance, they can instruct students in routines that allow them to move smoothly from one learning activity to the next with minimal direction from the teacher and little disruption to the flow of learning (Gareau & Kennedy, 1991; Gaskins, 1988, p. 30). They can prevent student misbehavior by clarifying rules and expectations early, establishing habit-forming routines and procedures, and providing clear feedback about performance and behavior (Evertson & Harris, 1992, p. 29).

Administrators can ban practices that interrupt class time, such as PA system announcements or impromptu assemblies. In addition, students who are habitually late can be required to make up missed class time as a condition of promotion or graduation.

Finally, schools can experiment with innovative organizational procedures such as asking teachers, rather than students, to move from class to class, or allowing teachers to stay with the same group of students for a number of years. One study found that the latter practice eliminates "down time" at the beginning of the school year when teachers are getting to know a new group of students and deducing what they were taught the previous year (Fiske, 1991, p. 17).

These kinds of explicit classroom organization are the norm in Asian classrooms, which tend to be calm and orderly (Peak, 1993; Stevenson & Stigler, 1992, p. 39). During the early months of school, Asian children are "explicitly taught the component skills that are necessary for smooth operation of the classroom," (Stevenson & Stigler, 1992, p. 61) such as how to move from one activity to another, how to arrange the content of their desks, how to pay attention and follow directions, and how to speak loudly and clearly so they will be understood (Stevenson & Stigler, 1992).

As a result, Japanese and Chinese children spend less time out of their seats and talking to their peers at inappropriate moments than do American children. For example, one study found that American fifth graders are out of their seats nearly 20 percent of the time, as compared with 5 percent of the time for Asian children (Stevenson & Stigler, 1992, p. 39).

ROTE LEARNING

A large body of research shows that the content currently taught in many classrooms is boring and repetitive. Too many schools rely heavily on rote memorization or "drill-and-practice" activities rather than higher order thinking exercises to build students' knowledge and skills.

Education researchers have stressed the importance of restructuring academic time so that higher order thinking becomes a part

of all levels of the curriculum. The benefits of such a challenging curriculum are well-documented. A study of disadvantaged students in urban, suburban, and rural elementary schools found that instruction that focuses upon critical thinking to reinforce meaning and understanding of new information is more effective at inculcating advanced skills, and at least as effective at teaching basic skills (Knapp, Shields, & Turnbull, 1992, p. 37). Other studies have confirmed that "students who are exposed to academically challenging instruction perform better than students whose instruction focuses on basic skills" (U.S. Department of Education, 1992, p. 39).

Disadvantaged learners are most frequently subjected to rote drill methods. These techniques are particularly prevalent in Chapter 1 classrooms (U.S. Department of Education, 1992, p. 39); researchers note that "most of the supplemental services targeted to [disadvantaged] students (Chapter 1, English-as-a-Second Language services) provide extra practice in basic skills out of context and do not emphasize meaning and understanding" (Knapp et al., 1992, p. 37).

Researchers argue that this conventional approach to teaching disadvantaged and slow learners actually mitigates against academic success (Knapp & Turnbull, 1990, p. 56). The approach tends to break up disciplines such as reading, writing, and arithmetic into fixed sequences of discrete and isolated skills that are taught without any over-arching context. Likewise, schools often require mastery of the most basic skills before students are allowed to tackle more complex curriculum. For instance, children who have not mastered rote spelling exercises are not deemed capable of reading more interesting stories. This pedagogical technique underestimates what even slow learners are capable of accomplishing and postpones more challenging and interesting work for too long. As a result, student enthusiasm for learning is diminished (Knapp & Turnbull, 1990, p. 56).

Mind-numbing drill-and-practice methods are further reinforced by the pressure many American teachers feel to "teach to the test," to concentrate upon teaching only those facts and concepts which appear on state or nationally mandated competency examinations. Since those tests generally emphasize "basics only" knowledge, teachers have little incentive to spend their time on higher-order thinking skills which may only detract from the time students need to learn a large body of isolated facts prescribed by the test-making "authorities" (English, 1987, p. 17). International comparative studies have revealed that the United States tests more frequently than 10 other industrialized countries, thereby helping to drive these ultimately unproductive teaching practices, even though we place less emphasis on their results (Haynes & Chalker, 1992, p. 60).

Research casts doubt upon the effectiveness of drill-and-practice techniques in promoting long-term learning (Walberg, 1988, p. 29). A Johns Hopkins University analysis of 24,000 eighth graders showed that drill exercises negatively affected test scores in all four subject areas where they were used (Epstein & Mac Iver, 1992, p. 38). The same Johns Hopkins study found that even after controlling for students' differing abilities and prior achievements, eighth graders who take more rigorous and demanding algebra courses perform significantly better than do students who take other mathematics courses with less difficult content (Epstein & Mac Iver, 1992, p. 38).

Most memorization is boring and undermines students' natural motivation and enthusiasm for learning. Research shows that students actually lose their motivation to learn when their minds are not actively challenged (Resnick & Klopfer, 1989, p. 58). Many students lack the motivation to progress beyond the most basic levels of a strictly hierarchical curriculum.

By repeatedly exposing our students most at risk of educational failure to an impoverished basics-only curriculum, we may unintentionally be placing a firm ceiling on their educational opportunities (Knapp & Turnbull, 1990, p. 56). Failure to adopt creative teaching techniques and rich context for new knowledge at the lowest educational rungs inherently reinforces the inequalities with which students begin the educational process. This is particularly apparent in the

discipline of mathematics, for example, where "previous attempts to provide universal access to [the subject] have resulted in the creation of two forms of mathematics education; one for social and economic elites emphasizing reasoning and rigorous content, and another for the rest of society, emphasizing basic computation" (Silver, 1992, p. 48).

Japanese educators seem to have internalized this lesson. Their curriculum focuses primarily on higher-order thinking skills, rather than the rote teaching of isolated facts (Stevenson & Stigler, 1992, p. 40). Japanese teachers act as "coaches" in the classroom, posing provocative questions and exhorting students to work together to discover solutions. Students must work hard under this form of tutelage, generating multiple approaches to a solution, reworking problems when answers are incorrect, and explaining the rationale behind their methods (Stevenson & Stigler, 1992, p. 40).

It is important to note that the processes of discovery and inquiry do not occur in isolation from content. Rather, facts and information take on meaning and are more likely to be understood and remembered.

QUALITY AND RIGOR OF TEXTBOOKS

The low levels of quality and rigor found in many textbooks exacerbate the design flaw, because the texts are not challenging and are not geared to the learning levels of students. When students at different ability levels are placed in a classroom with a single textbook at what is commonly called "grade level" and the textbook is the primary instructional tool used by the teacher, some students will be lost while others will be bored.

There is substantial evidence that the quality and rigor of textbooks has declined. In a recent review of research on textbooks, Reis and Purcell (1991) point to the following findings from a number of studies:

- *Taylor and Frye (1988) found that 78 percent to 88 percent of fifth and sixth grade average readers could pass pretests on basal comprehension skills before they were covered in the basal reader (p. 3).*
- *Recent findings by Usiskin (1987) and Flanders (1987) indicate that not only have textbooks decreased in difficulty, but that they incorporate a large percentage of repetition... (p. 4).*
- *Flanders (1987)...[investigated] the mathematics textbook series of three popular publishers. Students in grades 2-5 who used these math textbooks encountered approximately 40-60 percent new content over the course of the school year which equates to new material two to three days a week. By eighth grade, the amount of new content had dropped to 30 percent which translates to encountering new material once every one and one-half days a week (p. 5).*
- *Kirst (1982)...believes that textbooks have dropped by two grade levels in difficulty over the last 10-15 years.*

Stevenson and Stigler's (1992) comparison of Asian and American textbooks point to other related problems for students in this country. They found Asian textbooks to be "slim, inexpensively produced paperbacks," with "few illustrations," and "very little information that is not necessary for the development of the concepts under consideration" (Stevenson & Stigler, 1992, p. 139). Teachers are expected to supplement the key concepts in the textbooks with other information central to the topic under study.

A very different situation was found in American classrooms where textbooks were found to be "thick, hard-covered volumes covering a whole year's work," with "colorful illustrations, photographs, drawings, or figures on each page," and "digressions into historical and biographical material" (Stevenson & Stigler, 1992, p. 139). Stevenson and Stigler point to the negative effects of the textbooks used in the United States:

> *Daunted by the length of most textbooks and knowing that the children's future teachers will be likely to return to the material, American teachers often omit some topics. Different topics are omitted by different teachers, thereby making it impossible for the children's later teachers to know*

what has been covered at earlier grades...Asian textbooks, by contrast, are developed on the assumption that knowledge should be cumulative from semester to semester; if the concept or skill is taught well the first time, it is unnecessary at a later grade to repeat the discussion (Stevenson & Stigler, 1992, p. 140).

USE OF TECHNOLOGY IN SCHOOLS

New computer technologies offer a promising vehicle for raising the intellectual level of classroom learning experiences. Computer software allows students to quickly and easily access information, such as news services and scientific databases, thereby expanding their research horizons and improving their analytical and inquiry skills (Honey & Henriques, 1993, p. 44). Computer technology also allows students to communicate with teachers and learners beyond their geographic boundaries. They can share data and research through electronic networks like the "Internet" and contribute to collaborative projects over a modem.

For those times when a student or group of students needs to reinforce understanding of a particular skill, "Computer-assisted instruction" (CAI) can be used on an individualized basis, thus freeing teachers of the necessity and monotony of full-class review sessions on basic skills that may need reinforcement. CAI packages have shown "significant positive effects at the elementary, secondary, and post-secondary levels" (Kulik & Kulik, 1991, p. 44).

Teachers who are using computers in the classroom report that technology energizes and enlivens the learning process and allows them to expect more from their students (Sheingold & Hadley, 1990, p. 44). Technology offers a way to differentiate and individualize the pace and content of instruction, so that students with different strengths and weaknesses can receive the kind of education each needs to succeed.

However, as the Commission points out, "technology is a great unrealized hope in education reform" (NECTL, 1994, p. 37). Today, schools use technology in very limited ways, primarily for drill and practice and for teaching computer literacy and programming skills (Sheingold & Tucker, 1990). Barriers to realizing the potential of technology include financial constraints, limits on professional development time for teachers to learn how to use the technologies, and rigid classroom schedules that do not permit students and teachers to use technology in productive ways.

Despite these barriers, the use of technology in schools is growing. In August 1993, more than 5,000 schools had satellite dishes. In 28 states, teachers were found to be using statewide electronic networks to share ideas, discuss issues, and obtain information for improving the quality of their instruction (U.S. Department of Education, 1993).

In the coming years, the challenge will be not only to bring technology to schools, but also to explore ways that it can be used to help students reach the high standards being set for them. Machinery alone will not bring about the changes we seek.

CHAPTER THREE

KEEP SCHOOLS OPEN LONGER TO MEET THE NEEDS OF CHILDREN AND COMMUNITIES

In making its recommendation to keep schools open longer, the Commission pointed to their finding that "many children, in many different communities, are growing up without the family and community support taken for granted when schools were created 150 years ago" ([NECTL], 1994, p. 34). Consistent with this finding, David Hamburg of the Carnegie Corporation notes: "Today's children are in crisis because today's families are in crisis" (Hamburg, 1992, p. 19). He goes on to say:

> *In the face of the world transformation of the twentieth century and its profound effects on families, one of the basic issues of human survival becomes how to meet the crucial requirements for healthy child development and adolescent development under new circumstances — how to cope with modern imminent dangers, how to make a living, how to live harmoniously with other people, how to meet one's personal needs and integrate them with those of a valued group, how to participate in the society in ways that ensure the well-being of oneself and one's family (p. 37).*

The Commission believes that families are critical actors in the education of children. The school cannot replace the family.

Yet, if we care about the academic performance of our youth, we cannot ignore the stresses placed on families and the broader communities in which they live. Unless we acknowledge the realities of their lives and work cooperatively with our students' families to remove the barriers that stand in the way of learning, our children will not be able to use their time in school productively.

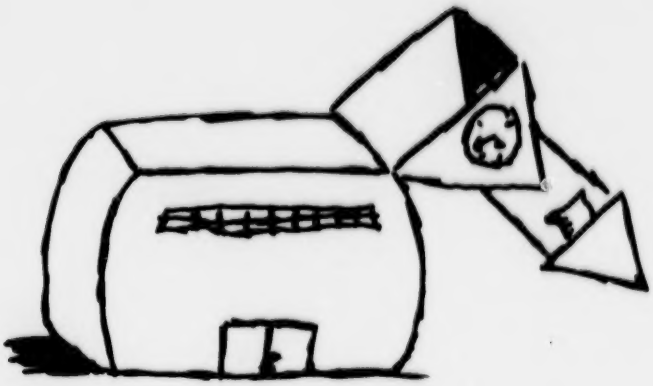
This is particularly important because a significant portion of the student population in our country lives in poverty and needs a variety of health and human services to overcome the obstacles that stand in the way of academic learning. In the final analysis, if children are hungry, sick, or abused, they will not be able to concentrate on reading, writing, and arithmetic.

In addition to providing opportunities for addressing students' health and social service needs and their needs for additional learning time, keeping schools open longer offers an opportunity to help children learn how to become productive workers and effective citizens.

To become contributing members of our society, youth must develop positive attitudes and constructive behaviors, a constellation of elements we call "character." Webster defines "character" as "a composite of good moral qualities typically of moral excellence and firmness blended with resolution, self-discipline, high ethics, force and judgment" (Webster's Third New International Dictionary, 1986, p. 376).

What does "character" look like? What qualities of character should students develop that "transcend cultural, religious, and socio-economic differences"? Those were the questions posed by a group of 28 national leaders concerned with the "crisis of ethics in our nation's young people" (Jackson & Sagerman, 1992, p. 1).

The 28 leaders included the chair of a state board of education, a state superintendent of public instruction, a member of the National Education Association, leaders of youth groups including 4H, Boys Scouts of America and Girl Scouts of America, heads of ethics institutions, and a number of authors and scholars. They agreed that the next generation of Americans must be "more firmly anchored to a cadre of values some called the six pillars of character: (1) Respect, (2) Responsibility, (3) Trustworthiness, (4) Caring, (5) Justice and



Fairness, and (6) Civic Virtue and Citizenship" (Jackson & Sagerman, 1992, p. 1). Without these basic ethical underpinnings, human societies cannot function in productive ways.

To develop such qualities, students need structured time under the supervision and guidance of adults. The Commission suggested that the rigorous academic day, the primary mission of schools, be supplemented by an extended school day, during which supplementary services and extracurricular activities would be offered. During the academic day, students would come to better understand concepts such as respect and responsibility through the study of history, literature and the arts. The extended school day would provide additional opportunities for them to learn and practice constructive behaviors.

Such programs would depend on the needs of students in a particular school, but might include participation in youth groups, art and music lessons, community service activities, remedial and enrichment activities, student clubs, organized sports, second language instruction, and extra computer time. The activities would offer students opportunities to enhance their academic and social skills, as well as opportunities to learn and further develop the basic qualities indicated above, which are necessary for participation as productive workers and effective citizens.

The Commission learned that such "nonformal" learning time, learning time outside the formal school day, is common in other countries. In Japan, as well as Germany, many students remain in school after the formal academic day is over to participate in activities that bring richness and depth to their lives.

This chapter will respond to a series of questions considered by the Commission in formulating its recommendation to keep schools open longer: What is the nature of the "new" world inhabited by elementary and secondary students in the United States and what effect is it having? How do junior high and high school students spend their time outside school? How much out of school time is devoted to homework? What effect does part-time employment have on academic performance? Do nonformal education programs make a difference and are they available? Should schools be open longer for students at both the elementary and secondary levels?

WHAT IS THE NATURE OF THE "NEW" WORLD INHABITED BY ELEMENTARY AND SECONDARY STUDENTS IN THE UNITED STATES AND WHAT EFFECT IS IT HAVING?

We need only read the newspapers or listen to the news to understand that everyone in our society, including the very young and the very old, live in an increasingly difficult, stressful, and complex world. Our economy is struggling, and violence has reached into both rich and poor communities.

Americans are working harder to maintain a decent standard of living. With the increasing costs of raising children, in most two-parent families, both parents must work.

Half of our children will spend some portion of their school years in a single-parent family, and family time with children has declined 40 percent since World War II (NECTL, 1994, p. 15).

Nearly 25 percent of all children, and 50 percent of all African American children, in the United States are living in poverty (NECTL, 1994, p. 16). Poverty, meanwhile, continues to rise, so that our schools will be serving over 30 percent more poor children in the year 2020 (Legters & Slavin, 1992, p. 56-57).

It is difficult to ignore the alarming evidence that large numbers of our children, both young children and adolescents, are not developing a working understanding of the basic traits for living in and preserving civilized societies — qualities such as respect, responsibility, trustworthiness, caring, justice and fairness, and citizenship. It would be possible literally to fill pages with lists of statistics and news stories that point to the severity of our problem. In 1994, the Children's Defense Fund warned that homicide has become the leading cause of death for elementary and middle school children, noting that "the equivalent of a 'classroom' of children is killed every two days by firearms" (Vobejda, 1994, p. 3). A few findings from a 1993 study by the National School Boards Association (NSBA), 1993 make the point:

- *One-fourth of all suspensions from school nationally were for violent incidents committed by elementary school students.*
- *Juvenile arrests for murder increased by 85 percent between 1987 and 1991.*
- *Sixty-three percent of incidents involving guns on school property involved high school students; 24 percent involved junior high school students; 12 percent involved elementary students; and 1 percent involved preschoolers (NSBA, 1993, p. 3).*

While the numbers are alarming, so is the fact that the severity of crimes committed by school age children is increasing. The NSBA noted that "it is not just the number of violent incidents that is on the increase... the incidents themselves are becoming more serious" (NSBA, 1993, p. 4). Among urban school districts responding to NSBA's study, 39 percent reported they had experienced a shooting or knifing in school; 23 percent a drive-by shooting in the district; 15 percent at least one rape on school property in the previous year. Similarly, the American Psychological Association Study (American Psychological Association Commission on Youth and Violence [APACYV], 1993) of youth violence found:

> *The intensity of violence involving children has escalated dramatically. In testimony presented to APA... [the] Director of Child Protection Services at Children's National Medical Center in Washington, DC, noted that the rate of penetrating trauma due to violence [such as bullet or stabbing wounds]... increased by 1,740 percent between 1986 and 1989* (APACYV, 1993, p. 12-13).

Why is violence growing so dramatically among our youth? Citing other research, as well as their own, NSBA concluded that "Violence is a problem that begins at home" (1993, p. 5). The increase in violence reflects changes in the family structure and norms families establish for their children. Specific changes in families cited by NSBA that have led to increased violence include the following:

- *an increasingly inhumane society... children and families in poverty with no hope...;*
- *lack of parental caring and supervision in well-to-do families;*
- *lack of discipline on the part of parents — parents fear their kids;*
- *lack of parental concern regarding student behavior and student whereabouts;*
- *parents not supervising their children;*
- *poor family discipline; and*
- *lack of a clear and consistent disciplinary response society-wide — at home, at school, and in the courts* (NSBA, 1993, p. 5).

In an environment where parents do not have or take the time to establish high expectations, clear rules, and consistently applied consequences for the behavior of their children, television fills in the gap as a primary mechanism for socializing children. Television provides clear and consistent messages and it spends more time teaching children than parents do. Consider the following findings from the American Psychological Association:

- *Viewing violence in the mass media has long-lasting consequences. Viewing violence...increases desensitization to violence and increases viewers' appetites for becoming involved in violence.*

- *Research has concluded that higher levels of viewing violence on TV contribute to an increased acceptance of aggressive attitudes and aggressive behavior.*
- *In prime time, there are five to six violent acts per hour; there are 20 to 25 per hour on Saturday morning children's programs. The rate of violence on cable and video cassettes far exceeds that on commercial television.*
- *Ninety-eight percent of American homes have at least one television which is watched each week for an average of 28 hours by children and 23 hours by teenagers* (APACYV, 1993, p. 4).

The findings of the studies described above and the findings of other studies to be cited below paint a disturbing picture of a world which is becoming more complicated and more violent. It is one in which parents and extended families provide less structure and guidance than was provided to children in previous generations. It is one in which television and peers have taken over the socialization of large numbers of children while parents are working.

HOW DO JUNIOR HIGH AND HIGH SCHOOL STUDENTS SPEND THEIR TIME OUTSIDE OF SCHOOL?

In the United States, approximately 60 percent of the time adolescents are awake is devoted to going to school, chores, eating, or paid employment. The remainder of their waking time, approximately 40 percent, is discretionary.

The Carnegie Council on Adolescent Development notes that "one reason American youth have so much discretionary time is the comparatively short school day (six to seven hours, not all of which are spent in academic pursuits)" (Task Force on Youth Development and Community Programs, 1992, p. 30). Carnegie also notes that "the average American junior high school student spends 28.7 hours per week in school and 3.2 hours studying; a Japanese counterpart spends 46.6 hours in school and 16.2 hours in study" (Task Force on Youth Development and Community Programs, 1992, p. 32). In many families where both parents work or the child is living with a single parent who works, much of the child's discretionary time is unsupervised (Task Force on Youth Development and Community Programs, 1992).

What do adolescents do with that time? As previously noted recent research has found that American teenagers spend over 20 hours watching television per week. Seventy percent of 13-year-olds and 50.6 percent of seventeen-year-olds watch at least three hours of television a day NCES, 1993). In contrast, they read for pleasure only about 1.8 hours per week (Task Force on Youth Development and Community Programs, 1992, p. 67).

One study found that eleventh-graders "spend about 80 percent more time with their friends than they do studying" (Fuligni & Stevenson, 1993, p. 11). Eighty-three percent of them said they were dating and 80 percent said they held down part-time jobs (Fuligni & Stevenson, 1993, p. 11). National surveys indicate that about two-thirds of all high school juniors and seniors hold formal part-time jobs and that over half of all employed seniors work over 20 hours a week.

Researchers have suggested that we think about how American adolescents spend their "free" time, not only because they have so much of it, but also because much socialization occurs during "free" time. For example, Fuligni and Stevenson (1993) found that Chinese and Japanese students spend much more overall time at school than American students do. They make the following observation:

> *Activities at school apparently play a central role in preparing Chinese and Japanese adolescents for entrance into adulthood... In contrast,... [the] finding that American high school students spent almost a third of their waking time with friends suggests that interacting with peers in out-of-school settings plays an important role in adolescent development in the United States* (Fuligni & Stevenson, 1993, p. 5).

HOW MUCH OUT-OF-SCHOOL TIME IS DEVOTED TO HOMEWORK?

Historically, American students have not done a great deal of homework (Murphy & Decker, 1989, p. 77; NCES, 1992). Studies show that from 1930 to 1980, few students spent more than one to two hours a week studying outside of school (Murphy & Decker, 1989). It is not unusual for parents who ask their children if they have homework to hear: "I finished it in school." In the United States, "homework" frequently does not mean work at home. It means work done during time provided by teachers at the end of classes and it means work done in study halls.

When asked how much homework they do each day, 69.2 percent of 13-year-old public school students and 64.9 percent of 17-year-olds reported doing at least one hour of homework a day. A study of 3,700 elementary teachers found that over half of first, third, and fifth grade students spend 30 minutes or less on homework per day (Epstein, 1988). It is not clear, however, how much of this "homework" is done in class or study halls, and how much is actually done at home.

Does it matter whether children do homework? Most research on the effects of homework has been conducted at the secondary level where it has been shown to improve academic performance and student behavior (Cooper, 1989; Epstein, 1988, p. 83). One study found that the grades of low-ability secondary school students who did 10 hours or more of homework a week were as good as the grades of high-ability students who did no homework (Keith, 1982). A review of 15 studies of homework concluded that assigning and grading homework has three times as much effect on student achievement as family socioeconomic status (Walberg, 1991). Eleventh grade mathematics scores in the United States, Japan, and China have been found to depend heavily upon the amount of time spent studying (Fuligni & Stevenson, 1993, p. 68).

How much time should students spend on homework? At the middle school level student achievement increases with the amount of homework completed up to two hours a night (Cooper, 1989). At the high school level, the more time students spend on homework, the better they seem to do (Cooper, 1989). At the elementary level, students who have lower achievement scores spend more time on homework in mathematics and reading than students with higher scores (Epstein, 1988). This is likely due to the fact that the parents of elementary school children tend to monitor their children's work and encourage more effort on skills students need but have not yet mastered.

Evidence appears strong that students in other industrialized countries are likely to spend substantially more time on homework than American students (Haynes & Chalker, 1992, p. 80). In one study, students in four out of five countries spent 70 percent more time studying than Americans at equivalent grade levels (Graham & Weiner, 1992, p. 59). In Asia, homework is assigned during the entire year, even when school is not in session (Stevenson & Stigler, 1992, p. 80).

There appears to be great variation in how much homework teachers give and how much students do. For example, a study of 3,000 teachers in Illinois high schools found that school districts and schools often lack homework policies. (Murphy & Decker, 1989) Some teachers (85 percent) assigned homework; others did not (14 percent). Homework is also a significant part of some students' grades. In the Illinois study (Murphy & Decker, 1989), 97 percent of the teachers who graded homework counted it in the students' grade, but the importance placed on homework by teachers varied greatly. Overall, nearly half of the teachers counted homework for at least 25 percent of the student's total grade. In that study, 11 percent of the teachers counted homework for 50 percent of the grade or higher while 18 percent of teachers counted homework for 20 percent of the grade.

WHAT EFFECT DOES PART-TIME EMPLOYMENT HAVE ON ACADEMIC PERFORMANCE?

Researchers have asked whether working during the school year has negative effects

on adolescents' academic performance or other behaviors. They suggest that the issue is not whether students work during the school year, but rather, how many hours they work. Previous research has found that the point at which students begin to feel the negative effects of work is when they work 15 to 20 hours per week. Steinberg and Laurence's major findings are presented below (Steinberg, Fegley, & Dornbusch, 1992):

- *National surveys indicate that approximately two-thirds of all high school juniors and seniors hold jobs in the formal part-time labor force at any specific time during the school year, and that over half of all employed U.S. high school seniors work more than 20 hours per week* (Steinberg, Fegley, & Dornbusch, 1992, p. 3).
- *Adolescents who...work more than 20 hours weekly are less academically inclined and poorer students to begin with than their peers who do not work* (Steinberg, Fegley, & Dornbusch, 1992, p. 27).
- *Taking on a job for more than 20 hours weekly diminishes youngsters' investment in school, increases delinquency and drug use, furthers autonomy from parental control, and diminishes feelings of self-reliance* (Steinberg, Fegley, & Dornbusch, 1992, p. 26).
- *Working does not further erode student's grades...despite the negative impact it has on class attendance, homework performance, and attitudes toward school. This [may be] due to the fact that many working adolescents are able to maintain and protect their grade-point average by choosing easier teachers, selecting less challenging courses, or cheating on tests and assignments* (Steinberg, Fegley, & Dornbusch, 1992, p. 29).

What effect does part-time employment during the school year have on students? The primary issue is how many hours are devoted to employment. The research suggests that more than 15 to 20 hours per week has negative effects. A great deal, however, depends on the individual student and the nature of the job. If the job offers the student positive role models, and teaches him or her personal skills like self-discipline, responsibility, and respect for others, it can be a valuable experience and motivate in-school learning.

DO NONFORMAL EDUCATION PROGRAMS MAKE A DIFFERENCE AND ARE THEY AVAILABLE?

The term "nonformal education programs" refers to those programs offered to students before and after the formal academic school day. The benefits of nonformal educational programs are well documented.

For example, a study for the Carnegie Council on Academic Development found that "high school students involved in organized activities had higher self-esteem, higher grades, higher educational aspirations, lower delinquency rates, and a greater sense of control over their lives" (Medrich & Marzke, 1991, p. 63). A 1987 survey of 4-H alumni and other youth groups found that, "on average, alumni believe that program participation contributed to their personal development by giving them pride in accomplishment, self-confidence, the ability to work with others, the ability to set goals and communicate them, employment and leadership skills, and encouragement of community involvement" (Task Force on Youth Development and Community Programs, 1992, p. 71). Another researcher claims, "Participation in extracurricular activities may lead adolescents to acquire new skills (organizational, planning, time-management), to develop or strengthen particular attitudes (discipline, motivation), or to receive social rewards that influence personality characteristics" (Holland & Andre, 1987, p. 73).

The importance of the skills and attitudes promoted through nonformal learning cannot be underestimated. For example, a 1991 Committee of Economic Development survey found that "lack of dedication to work and discipline in work habits are the biggest deficits that employers see in high school graduates." Other surveys of prospective employers echo the need for

qualities such as "character, sense of responsibility, self-discipline, pride, teamwork, and enthusiasm" (Cappelli, 1992, p. 64). In identifying the skills and competencies that students need to develop for success in the workplace, the Secretary of Labor's Commission on Achieving Necessary Skills (SCANS) found that personal qualities, such as individual responsibility and integrity, and strong interpersonal skills are some of the most valuable (1992, p. 45-46).

Other countries pay attention to the development of desirable personal qualities associated with good character. Japanese schools, for example, have long recognized the need to foster personal and moral, as well as intellectual, development in students and offer moral education classes as part of their regular academic curriculum (Stevenson & Stigler, 1992, p. 40).

Participation in nonformal learning experiences seems to have the strongest positive effects for those who are at greatest risk of scholastic and personal failure (Holland & Andre, 1987, p. 73). Likewise, there is evidence that the young "children who benefit the most from child-care centers are those who come from relatively poor families" (Task Force on Youth Development and Community Programs, 1992, p. 74). At least two-thirds of the children served by grassroots youth organizations that currently offer organized extracurricular activities are from low-income families "and are defined as facing serious risks... About the same proportion have had some involvement with the juvenile justice system" (Task Force on Youth Development and Community Programs, 1992, p. 71).

Government funding, however, has been shrinking during the past 15 years, and most parents of children who need these programs can rarely afford to pay for them. For example, existing out-of-school programs tend to serve young people from more advantaged families: "Only 17 percent of eighth graders from families in the highest socioeconomic quartile did not participate in organized out-of-school activities, while 40 percent of low-income youth reported no involvement" (Task Force on Youth Development and Community Programs, 1992, p. 63). Other studies support this conclusion. A 1992 Carnegie Corporation of New York Task Force on Youth Development and Community Programs, for instance, found that more and better services reach relatively affluent suburban areas while disadvantaged students in low income urban and rural areas have less and less access to the services they need (Task Force on Youth Development and Community Programs, 1992). All of this suggests that schools do more with organized activities.

Schools have not traditionally viewed day care, social services, and organized youth activities as within their purview, although they have been involved to some extent in the provision of extracurricular activities such as team sports and fine arts programs. The private nonprofit sector, including municipal recreation programs, social service or charitable organizations, religious groups, or local government agencies, and for-profit schools and day care corporations have traditionally accepted responsibility for providing extended "full service" children and youth programs (Seppamen, deVries, & Seligson, 1992, p. 65). The great bulk of revenue (83 percent) for these programs has come from parental fees, and most of the remaining income is obtained from local, state, or federal government sources (Seppamen et al., 1992, p. 67).

At the elementary level, existing programs often fail to provide the needed degree of support. For instance, before-school programs average 1.8 hours a week, and after-school programs 3.2 hours a week. Only 11 percent of the programs are available after 6 p.m., and only 3 percent are offered on weekends (Seppamen et al., 1992, p. 66). In addition, such programs cater overwhelmingly to very young children (Seppamen et al., 1992, p. 65).

While the needs for quality care for elementary school children are great, schools cannot meet all of the needs. This fact has been recognized by many schools.

Currently, "17 percent of public school-based programs operate as partnerships with other agencies. Thirty-eight to 45 percent of public school-based programs indicate cooperative arrangements in the form of in-kind donations" (Seppamen et al., 1992, p. 65).

SHOULD SCHOOLS BE OPEN LONGER FOR STUDENTS AT BOTH THE ELEMENTARY AND SECONDARY LEVELS?

As these statistics suggest, the problems of society touch both elementary and secondary students. In addition, they affect students' performance, behavior, and attitudes both in and out of school.

The severity of the problem with adolescents is captured by findings from many recent commissions. For example, the National Commission on Children documented "the need for additional adult guidance and involvement in the lives of adolescents, a substantial portion of whom are exposed to peers and friends engaged in high-risk activities that threaten their and others' safety and well-being" (National Commission on Children, 1991, p. 7). The Carnegie Council on Adolescent Development issued a report called A Matter of Time: Risk and Opportunity in the Nonschool Hours. In it Carnegie (Task Force on Youth Development and Community Programs, 1992) noted:

> *Millions of America's young adolescents are not developing into responsible members of society. Many will not lead productive lives...lacking clear and consistent adult expectations for them, they feel alienated from mainstream American life* (p. 9).

In former decades, American parents monitored their adolescent children's activities more closely and expected children to be contributing members of the family. This is not the case today.

The financial cost of raising a child, which ranges from $150,000 to $300,000 per child, places significant financial burdens on parents. As children cost more and contribute less to families, parental attitudes change. For example, "two-thirds of parents now report that they are less willing to make sacrifices for their children than their own parents would have been" (Hamburg, 1991, p. 34).

It also is well documented that the teenage years are a time of conflict and pain in many American families (e.g., when teenagers are with their families, they report that negative thoughts outnumber positive ones about 10 to 1) (Csikszenztmihalyi & Larson, 1984). Nevertheless, teenagers still look to adults for guidance. Surveys and focus groups with young adolescents indicate that they "want more regular contact with adults who care about and respect them, more opportunities to contribute to their communities, protection from the hazards of drugs, violence, and gangs, and greater access to constructive alternatives" (Task Force on Youth Development and Community Programs, 1992, p. 71). In one survey of children age 10 to 17, 39 percent said they 'sometimes' wished their parents were stricter or kept a closer watch over them and their lives...[while] only about 1 percent said they 'never' wanted their parents to be stricter or more attentive" (National Commission on Children, 1991, p. 15).

All of this suggests that many adolescents are not getting the guidance they need from their parents. The Commission recommends that schools join with other agencies to provide the time and experiences adolescent children need.

Research also suggests that schools need to be open longer for elementary school students. Throughout the United States, more mothers work outside the home, leaving large numbers of "latchkey" children home alone. In 1992, 66 percent of all families with children under age 18 had mothers in the labor force (Outtz, 1993). Exact numbers are unavailable because parents who do leave their children alone are reluctant to report that they do so. However, researchers estimate that 12 percent of elementary school children care for themselves regularly after school, and by the time children reach age 10, as many as 70 percent may be on their own (Seligson, Gannett, & Cotlin, 1992, p. 64).

Latchkey children are especially likely to experiment with alcohol and other drugs. In fact, a study of approximately 5,000 8th-graders found that students who had no supervision for 11 or more hours a week were at twice the risk of substance abuse as their peers (Task Force on Youth

Development and Community Programs, 1992, p. 65).

The research findings about how the latchkey syndrome affects student achievement are mixed. However, as Selignson and Fink (1989) note in No Time to Waste: An Action Agenda for School-Age Child Care:

> *Almost every American who reads a newspaper knows the meaning of the term "latchkey children" — young children left on their own during the hours when school is out.... There are so many school age children taking care of themselves that even if only a fraction, say one-fifth of them, ends up doing worse in school, or has developmental, health or other problems as a result of the experience with self-care, this fraction will translate into a huge number of children (Seligson et al., 1989, p. 1).*

Are additional services needed for both elementary and secondary school students? Clearly, they are. The Commission recommended that school facilities be available for a wide array of services for children and their families. To do this will require a longer school day that stretches beyond the confines of the six-hour core academic day and may operate before school, during the evenings, on weekends, and over summer break to protect children and to provide them with positive learning experiences.

CHAPTER FOUR

GIVE TEACHERS THE PROFESSIONAL TIME AND OPPORTUNITIES THEY NEED TO DO THEIR JOBS

The Commission's study of time and learning in schools clearly and consistently points to a need for more and better time for teacher learning. Teachers must have time to master their subjects, design learning experiences for students that will lead to the achievement of rigorous academic standards, use improved assessment systems, better prepare for teaching their students, and work with and learn from colleagues and others with particular kinds of expertise.

To lock teachers into the existing system, which defines a teacher's professional activity almost solely as the time spent in front of students in classrooms, is to guarantee failure. As the Commission noted, "The whole question of teachers and time needs to be rethought in a serious and systematic way" (NECTL, 1994, p. 36).

The critical issues are how much more time is needed by teachers and how should they use that time. This chapter will summarize what we know from research about the need for additional time and discuss a number of factors that must be considered when additional time is provided for the professional development of teachers.

As with student learning, research suggests that there is a tendency for educators and the public to choose superficial solutions to the issues surrounding teacher learning. For example, most of the press coverage in the first month after the release of Prisoners of Time focused on extending the school day or school year for students — the relatively simple idea of providing more time. A much smaller percentage of the press coverage focused on the design flaw inherent in the structure of schools — the more complex idea of determining why more time is needed and what kind of time should be provided.

How are we currently thinking about teacher time? The most popular strategy suggested by the current reform movement is to provide more time for teachers to collaborate with each other. The assumption is that groups of teachers in schools can generate solutions to the problems facing them and their students by sharing their collective knowledge and experience.

While this strategy is appealing intuitively, research suggests that the potential impact of teacher collaboration on student learning will be achieved only when other factors are seriously taken into consideration. This chapter will summarize the types of factors that must be considered as states and school districts grapple with the question of how much more time is needed and how that time should be used.

The following questions will be addressed:

1. Why is the concept of continuous professional development so essential?
2. What do we know about the amount of time teachers need?
3. Is there really a problem with the knowledge, skills, and perspectives teachers bring to the classroom?
4. What must be understood about the culture of schools if we are to change teaching behavior?
5. Why is there a critical need to be clear about the purposes for additional teacher collective time?

WHY IS THE CONCEPT OF CONTINUOUS PROFESSIONAL DEVELOPMENT SO ESSENTIAL?

One of the problems noted by the Commission is the generally held belief that the "only valid use of teachers time is 'in front of the class,' the assumption that reading, planning, collaboration with other teachers, and professional development are somehow a waste of time" (NECTL, 1994, p. 17). This belief ignores the fact that building good teaching practices, like building anything of great worth, requires a substantial investment of time.

The list of things teachers need to know and be able to do in order to be effective in teaching today's student is longer and more complex than at any time in our nation's history. For example, we are asking them to restructure the entire teaching and learning process to insure that all students learn to high levels. We are asking them to acquire much more in-depth understanding of subject matter and pedagogy. We are asking them to teach students with characteristics and needs that they may have not encountered before — students they may not know how to teach (McLaughlin & Talbert, 1992). We are asking them to be actively involved in organizational change through participatory management. In short, we are asking them to do many things they may not know how to do and have little time and opportunity to learn.

Some of the things teachers need to know can be learned through improved preparation in teacher education programs; there is some evidence that important changes are being considered or made in some of these programs (Recruiting New Teachers, Inc., 1993). However, we need opportunities for teachers already in the workforce to upgrade their skills, and we need opportunities for all teachers to continue to learn.

One of the problems we face in redesigning professional development is the fact that there is no body of research that can tell us exactly what to do and how to do it. We do know, however, where many of the problem areas lie and what has not worked before. While many of the problems are addressed in more depth in this chapter, a few examples will be highlighted here to give a sense of the scope of the challenge for effective professional development.

For example, one researcher noted, "Many teachers are likely to agree with the reform idea in the abstract, but in practice, are likely to question the wisdom of practices such as spending an entire class on one problem (too inefficient), or engaging students in a complex discussion of a topic (it confuses them), or of engaging students in experimentation (it leads to misbehavior)" (Kennedy, 1992, p. 94). Similarly, teachers may understand the importance of teaching complex problem-solving skills in a course, but lack exposure to classroom organizational techniques that support critical thinking and independent student inquiry.

We know that teachers frequently complain that the limited in-service training time they are given is rarely enough to help them improve their teaching practices in any meaningful way (Kilpatrick, 1992, p. 48). We know that teachers spend the bulk of their day in their classrooms practicing what they already know. We know that the time teachers can invest in instructional improvement is minimal; one survey of high school teachers found that 46 percent of them spend less than one hour a month in meetings planning curriculum and instruction,

and another 30 percent spend only between 1 and 5 hours per month in such meetings (Moles, 1988, p. 87).

We also know that low priority is placed on professional development by American schools in direct contrast to Asian and some European philosophies about teacher training. In Asia, for example, "there is a systematic effort to pass on the accumulated wisdom of teaching practice to each new generation of teachers by providing for continuing professional interaction of teachers" (Stevenson & Stigler, 1992, p. 92). In visits to Japan and Germany, the Commission found that teachers in Japan typically are in front of a class of students four periods a day. In Germany, teachers are in class with students for 21 to 24 hours per week, while they work approximately 38 hours per week. The remainder of their time is used for other aspects of their professional work including planning and working with colleagues to improve learning for students.

As indicated earlier, there is much work to be done to design effective professional development, and while there is no clear recipe, it is important to build on what we have learned. The remainder of this chapter will summarize key questions and findings examined by the Commission in making its recommendations about professional development.

WHAT DO WE KNOW ABOUT THE AMOUNT OF TIME TEACHERS NEED?

Estimates of the additional amount of time needed by teachers varies depending on what is to be accomplished. To some extent, research in this area is limited because we cannot study what has not been tried. For example, common sense tells us that teachers will need more time to learn how to translate the rigorous standards being developed in core academic subjects into classroom practice. However, we do not yet know how much learning time will be required for teachers to make our goals a reality.

Nevertheless, some research has been conducted on the time needed for teachers to implement innovative programs and practices. In Time for Reform (1992), Purnell and Hill summarize estimates of teacher time needed for reform from a number of different sources:

- *In a recent survey of 178 principals in urban high schools undertaking major change efforts, lack of time, energy, and money were identified as the key implementation problems. On average, teachers devoted 70 days of time to implementing a project while "the more successful schools used 50 days a year of external assistance for training, coaching, and capacity building"* (Purnell & Hill, 1992, p. 2).
- *Staff of the Effective Schools Network report that it takes 10 to 20 teacher days per month to develop and implement improvement plans* (Purnell & Hill, 1992, p. 2).
- *To learn a "moderately difficult teaching strategy could require that teachers receive 20 to 30 hours of instruction in its theory, 15 to 20 classroom demonstrations, and 10 to 15 coaching sessions before mastering the technique and incorporating it into routine classroom practice"* (Purnell & Hill, 1992, p. 2).

Research on teachers use of technology also provides a glimpse into the amount of time teachers need to learn to teach in new and more effective ways. For example, teachers can reasonably learn how to integrate computer-based drill-and-practice exercises into their repertoire of teaching strategies in a year or less. However, it may take five or six years for teachers to learn to use technology in ways that support higher-order thinking skills, decision making, collaboration, etc. (Sheingold & Hadley, 1990, p. 44).

We do not know, however, whether less time would be required if teachers had a thorough understanding of the structure of the disciplines they teach or if they were given guidance in using technology productively. Studies show that the majority of teachers who do use computers and telecommunications technologies in the classroom are self-taught because appropri-

ate professional development and support is virtually nonexistent in schools (Honey & Henriques, 1993, p. 44).

IS THERE REALLY A PROBLEM WITH THE KNOWLEDGE, SKILLS, AND PERSPECTIVES TEACHERS BRING TO THE CLASSROOM?

One of the most obvious factors in the success of any worker is the knowledge, skills, and perspectives he or she brings to the effort. If we expect teachers to play a significant role in improving teaching and learning, we must consider whether the teachers in a school collectively have the knowledge, skills, and perspectives needed to address the problems they face.

Little (1990) pinpoints the heart of the problem when she says, "Under some circumstances, greater contact among teachers can be expected to advance the prospects for students' success; in others, to promote increased teacher-to-teacher contact may be to intensify norms unfavorable to children" (p. 524). Little goes on to say:

> *Bluntly put, do we have in teachers' collaborative work the creative development of well-informed choices, or the mutual reinforcement of poorly informed habit? Does teachers' time together advance the understanding and imagination they bring to their work, or do teachers merely confirm one another in present practice...Are there collaborations that in fact erode teachers' moral commitments and intellectual merit* (p. 525).

The point is not to delay reform activities until teachers and others in a school develop some ideal set of knowledge, skills, and perspectives. Rather, it is important to assess the strengths and weaknesses of the people in schools to provide a basis for generating mechanisms that will enhance and further develop the qualities schools need in their staffs.

As states and schools throughout the nation establish high rigorous academic learning standards for all students, it becomes increasingly important for teachers to have a solid grounding in subject matter content. In a recent study, researchers at the National Center for Research on Teacher Education found that "elementary and secondary teachers frequently lack connected, conceptual understandings of the subject matters they are expected to teach" (McDiarmid, 1992, p. 1).

A number of researchers (Greeno, 1993; Shulman, 1987; Stodolsky, 1988) have argued that we must move from the teaching of tedious facts to teaching for understanding. McLaughlin and Talbert (1992) note that teaching for understanding requires "pedagogical content knowledge" (p. 3), "knowledge not simply of a subject area, but also of how to teach it — how to select, represent, and organize information, concepts, and procedures...so that subject matter knowledge can be transformed into teaching for understanding" (p. 3).

One logical solution to teachers' inadequate content knowledge has been to require more courses in the subject matter they teach. For example, some reformers of higher education argue that prospective teachers should complete a four-year liberal arts program and a year of professional teacher training. The assumption is that teachers will develop a solid grounding in their subject matter and would be able not only to teach students a set of "facts" related to the subject, but also the concepts and theories necessary for students to think about and use what they learn.

However, there is growing evidence that this approach may not produce the results we desire. For example, Boyer (1987) found that college teachers lecture and college students have few opportunities to learn how to clarify positions or challenge ideas. Durkin and Barnes (1986) found the emphasis in most college courses to be on "lower-level and convergent types of cognitive operations" (Durkin & Barnes, 1986, p. 763). Perkins (1986) found that students' reasoning skills do not appear to improve between the time they begin and complete college.

Ball (1988) found that many college students, "including people who were majoring in mathematics, had difficulty working below the surface of so called simple mathematics" (Ball, 1988, p. 20-21). She noted

that college students "could perform the procedures, [but] lacked understanding of the content" (Ball, 1988, p. 21). In her comparison of math majors and non-math majors, Ball found that "math majors, who had obviously taken more mathematics courses and knew more 'stuff' did not have a substantial advantage in explaining and connecting underlying concepts, principles, and meanings" (Ball, 1988, p. 22).

In short, prospective teachers do not appear to be developing the kinds of content knowledge understandings that will be required to implement rigorous standards for learning — at least not in liberal arts colleges. The significance of this finding is further compounded by the fact that "the subject matter preparation of teachers is rarely the central focus of any phase of teacher education" (Ball, 1988, p. 22).

McDiarmid (1992) summarizes the situation as follows:

> *The current reform trend may produce more teachers who log more seat-time in arts and science courses. But will they know more about the subject matter they must teach? And will what they learn about the subject matters sustain them in helping diverse students learn? From the evidence on student learning in the arts and sciences, it ain't necessarily so* (p. 24).

WHAT MUST BE UNDERSTOOD ABOUT THE CULTURE OF SCHOOLS IF WE ARE TO CHANGE TEACHING BEHAVIOR?

Another critical issue that must be considered when more time is provided for teachers to engage in school reform is the culture of the school. In addition to the skills or knowledge which tend to be primarily technical, the "culture" of a school has significant elements that are philosophical, political and emotional. Culture refers to the accepted way of living with others in a group and to the mix of beliefs, values, and norms held by the group.

The culture of most schools in the United States leaves teachers isolated and does not encourage them to work with others in solving problems or improving student learning. As Joyce, Bennet, & Rolheiser-Bennet, (1990) suggest:

> *The culture of the school has proved to be a very tough customer indeed. Proposals both for the "empowerment" of teachers and for an increase in the use of the knowledge base in education depend on the realization of a radically revised workplace with very different relationships among teachers and much greater attention to the application of knowledge than is the norm in educational settings today* (p. 34).

Failure to take into account the power of the school culture in change efforts is a recurring theme in the evaluation of change efforts. Two powerful examples follow.

The first example involves Theodore Sizer's Coalition of Essential Schools. The coalition, which includes more than 400 schools nationwide provides a clear set of principles for schools to use in designing their programs. Muncey and McQuillan (1993), who conducted a five year ethnographic study of eight of the Coalition of Essential Schools sites concluded that "schoolwide reform will be very difficult to accomplish" (p. 487). They found the following:

- In the majority of schools "there was not consensus that fundamental changes in school structure or teaching practices needed to occur" (p. 487). In each case, only one or two administrators and a core of teachers believed changes were necessary.
- When schools attempted to develop a schoolwide philosophy, "many previously unacknowledged philosophical divisions within the faculty emerged" (p. 487). In the same school, faculty members had different "perceptions of their jobs, the

school's mission, and the best ways to educate children" (p. 487).

- As groups of teachers within a school became actively involved in reform, their efforts "often ended up dividing the faculty" causing "tension" and "rifts." Teachers who were trying to make changes were viewed by other teachers as receiving "preferential treatment" and were resented (p. 488).
- Teachers involved in reform focused on the substance of the changes they were trying to make in curriculum and instruction and did not take the time or "make it a priority to convince their skeptical colleagues of the program's merit" (p. 488). Substantial opposition arose.
- Most reform efforts began by focusing on issues that could be addressed "with little disruption to the school as a whole" and did not lead to systemic, school-wide change (Muncey & McQuillan, 1993, p. 487).

In Sizer's schools, the changes attempted "activated latent political tensions or heightened new ones and sometimes created new factions" (Muncey & McQuillan, 1993, p. 489). Faculty members "often found themselves isolated, exhausted, and discouraged" (Muncey & McQuillan, 1993, p. 489). While the principles put forth by the Coalition were sound in a technical sense, the results of the evaluation suggest that the culture of the school was not taken into consideration to the extent needed.

A second study (Hargreaves, 1992) examined the effects of providing additional release time for elementary school teachers in Ontario, Canada to collaborate on school improvement. Through contract negotiations, elementary school teachers were given approximately 120 minutes per week away from students in preparation time. The additional time was found to "alleviate stress and increase the opportunities for the planning and preparation of more creative work" (p. 98).

However, four "perversities" of additional preparation time also were identified. First, increased preparation time did "not necessarily enhance the process of association, community, and collegiality among teachers" (Hargreaves, 1992, p. 98). The increased preparation time was considered too "precious" and "scarce" to "fritter" away in discussions with colleagues (Hargreaves, 1992, p. 99).

Second, while the teachers "appreciated" the additional time they had received, an "important minority" of the teachers did not want the further amounts of time for which their federations were fighting in order to move closer to the working conditions of high school teachers. They were concerned about being away from their students too much and the effect it would have on the quality of service being provided (Hargreaves, 1992, pp. 99-100).

Third, when "substitute" teachers came into their classes to cover the periods of released time, the regular classroom teachers preferred arrangements where the "substitute" teachers handled self-contained areas of instruction such as music or foreign language. They did not want to share responsibility with the "substitute" teachers, because "sharing classes where both teachers' expertise in the chosen subject was adequate or strong... exposed differences and raised doubts about whose expertise might be weaker — doubts the teachers preferred to keep suppressed" (Hargreaves, 1992, p. 101).

Fourth, where collegiality did exist, it was more often "contrived" than real. Teachers were scheduled and administratively required to meet with colleagues. Hargreaves notes that "collaborative cultures" are a relatively rare occurrence (Hargreaves, 1992, p. 103).

The two studies described above point to the power of school culture. So important is the culture of schools that Fullan and Stiegelbauer (1991) note, "One of the great mistakes over the past 30 years has been the naive assumption that involving some teachers on curriculum committees or in program development would facilitate implementation, because it would increase acceptance by other teachers" (p. 127). Fullan and Stiegelbauer go on to say: "Change is a highly personal experience — each and every one of the teachers who will be affect-

ed by change must have the opportunity to work through this experience in a way in which the rewards at least equal the cost" (p. 127).

WHY IS THERE A CRITICAL NEED TO BE CLEAR ABOUT THE PURPOSES FOR ADDITIONAL TEACHER COLLECTIVE TIME?

Research suggests that another potential problem that may undermine the value of collaborative time for teachers is a focus on the collaboration itself rather than the reason for the collaboration. For example, many schools throughout the nation have attempted to implement site-based decision making models.

In schools where site-based decision making models are implemented, the goal has been to establish structures that encourage teachers to influence the functions schools perform on the assumption that their influence ultimately will lead to improved student performance. How effective have site-based decision making initiatives been? One group of researchers (Malen, Ogawa, & Kranz, 1991) who reviewed the literature on site-based decision making concluded that there is "little evidence that [site-based decision making] alters influence relationships, renews school organizations, or develops the qualities of academically effective schools" (p. 289). Johnson and Boles (1992) who conducted an extensive review of research on site-based decision-making note the following:

> *Before 1990, those who reviewed the school-based management literature would likely have declared the reform a failure, for there was little evidence of positive outcomes, particularly in increased learning for students. Even [illegible], with some more encouraging findings emerging about the implementation of school-based management in several districts, prospects for success remain murky* (p. 5).

Given these findings, some might argue that site-based management is an ineffective strategy. However, the research suggests that it may not be the strategy of site-based management that is ineffective. The failure of site-based management to reach its potential may be more a function of the lack of a clear focus on the purposes for implementing the strategy, and naive assumptions about the time required or the kinds of skills and knowledge required to use the strategy successfully.

For example, a number of researchers point to the need for time and professional development for teachers participating in site-based decision making and the inadequate training often provided (Malen et al., 1991, p. 309; Wehlage, Smith, Lipman, 1992, p. 76). Other researchers warn that site-based management may lead to negative effects for students if teachers do not have the necessary knowledge or desire to focus on improving student learning (Murphy, 1989, p. 808). Johnson notes, "School-site councils can make new decisions, control their budgets and reorganize their schools without improving children's learning" (Johnson, 1992, p. 7).

While most researchers report that teachers lack the time to participate effectively in site-based management, the ability of teachers to use the time they do have is critical. Wehlage, Smith, and Lipman conclude that "simply providing the time to meet...[is] no guarantee that teachers would know how to work together in ways likely to result in more engaging curriculum and improved student performance" (1992, p. 76).

Johnson (1992) suggests that site-based management will not work for the benefit of students unless teachers acquire two types of knowledge, knowledge associated with running organizations such as "how to organize meetings, how to reach consensus, or how to develop budgets," and "knowledge about teaching, learning, and curriculum" (p. 22). Finally, Johnson notes that "there is considerable evidence that a teacher's commitment to restructuring is enhanced by opportunities for continued learning about subject matter and pedagogy, particularly when staff development is embedded in practice" (p. 25).

As more and more schools move to collaborative structures, lessons from past efforts should be taken into consideration. Currently, many teachers' new-found "empowerment" has focused on issues unrelated to curriculum and instruction and therefore has had little effect on student learning. Research suggests that schools and the teachers in them need to be clear about the purposes for collaboration and use available opportunities to move closer to their goals. They also need opportunities to learn how to do the work we expect of them.

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THE UNANSWERED QUESTIONS

As the Commission conducted its work, it became clear that a good deal of valuable research was available to guide its deliberations. The preceding chapters reflect the scope and breadth of research examined on a number of key questions.

However, little or inadequate research was available on a number of other significant questions. The purpose of this chapter is to outline some of those questions as topics for further investigation.

The lists of questions which follow are not intended to reflect the full range of issues that need to be addressed by the research community. They do, however, suggest some of the areas in which additional research is needed to guide education policy and practice.

For many of the unanswered questions, research is appropriate. In other cases, it may be appropriate to invest in the development of carefully designed demonstrations which can contribute to our level of understanding. For example, several of the questions related to standards and technology may require the development of models, strategies, or methods that can be studied in practice.

In addition, both the research reviewed in the previous chapters and the questions outlined here suggest the critical importance of maintaining a focus on student and teacher learning in both research and practice. For example, the research on site-based decision making suggests that it makes little sense to involve teachers in the time-consuming governance of schools if they are not focusing on issues of curriculum and instruction. It makes little sense to invest large amounts of money in professional development of teachers if the strategies supported do not provide teachers with the learning opportunities they need to better their teaching.

Both the research reviewed in earlier chapters and the unanswered questions presented here suggest the need for a parallel focus on the quality of student learning. We need to ask whether and how the particular strategy being considered will make a difference in student performance both in school and later as students become workers and citizens. Research should help us understand how the issues being studied affect student learning.

Finally, as the introduction to this document indicated, research was not reviewed on three recommendations made by the Commission, all of which call for action. However, the questions presented in this chapter suggest a critical need to study what is currently happening in the reform movement. As the federal government, states, and school districts invest in reform, we need to know what is working and what is not. We need to reflect upon and use what is learned from the efforts we undertake.

We need to understand the processes for developing effective local plans to transform schools within the context of Goals 2000. We need to know what roles government, higher education, business, private foundations, social and civic organizations, parents, students, and teachers should play. We need to study the various approaches being taken and build on what works.

The questions outlined here are arranged according to the topics reviewed in previous chapters. They are not presented in priority order within each category. Rather, they reflect a range of issues to be addressed if we are to have the information necessary for future decision making.

RECLAIM THE ACADEMIC DAY

- How rigorous are the courses students are required to take to meet current state requirements in academic areas? How much non-academic activity goes on behind ostensibly academic course titles and school schedules? Exactly what are students expected to know and be able to do in this country? Are the standards different for students with different characteristics? How do we compare with other countries?
- How is time actually spent in schools at the elementary, middle, and high school levels? What variations are there and what effects do they have on student performance? What kinds of non-academic activities occur in schools? How do they affect the uses of time?
- What do parents, teachers, and the general public view as the purposes of education? Are there differences among groups? Are there different views for the elementary, middle, and high school levels?
- How do the curricula and schedules of high-quality private schools differ from public schools? Are there differences among public schools in various regions of the country?
- What state mandates stand in the way or provide no incentives to focus on academic learning? What rules, administrative procedures, and legislation do states put in place that support or hinder improvement?
- To what extent, and in what form do other countries establish or promote national content standards in the core subjects? Are there significant regional variations in such standards or in the curricula to achieve the standards? What subjects are held to national standards? What is perceived as important for all students to know and be able to do?
- How are national standards established in other countries? Who composes and issues them? What is the process used to reach consensus?
- In other countries, are the standards the same for all students? If not, how do they differ and for whom? Is the curriculum the same for all students? If not, how does it differ and for whom? Is there a partial common core? What is it? How are "tracks" arrived at? What percentage of each age group is in each track? What percentage of students complete secondary school and what percent go on to further education and what sort of education? What are the admission requirements in other countries for each sort of post-secondary education?
- In other countries, what are the methods of assessing student performance at various grade levels? How are they related to the standards and the curriculum? What are the stakes?
- What changes in the standards or in their application are being considered by other nations? Is there active opposition to the standards and their influence? What are the points of controversy?
- How are standards in other nations used to shape the curriculum from the earliest grades through secondary schools?
- In the United States, what percent of the total amount of money spent by school districts for the education of children (in terms of teacher time, facilities, and materials) is actually used to support academic versus non-academic activities? How does that compare with how funds are used in other countries?
- How are funds for education in the United States and other countries allocated among grades, subjects, texts and materials, special education programs, teacher salaries, administrative costs, school maintenance, family aid, and capital expenditures?

FIX THE DESIGN FLAW

- The design flaw refers to providing equal amounts of time for students who learn at different rates. To what extent are American schools experimenting with different time configurations (e.g. alter-

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native schedules, different amounts of time for different students, school years longer than 180 days, graduation based on performance)? What are the effects on student performance?

- What common methods and conditions support high levels of academic learning for both at-risk and gifted and talented students?
- What are effective strategies for developing students' motivation to learn? To what extent are they subject-specific? What can be done in classrooms, and what needs to be done in the home and community?
- What is the nature of teaching and learning in countries with particularly high test scores and how does it differ from that in the United States? What do classrooms look like? What does the curriculum look like? What is the nature of interaction between teacher and student?
- What are the effects of school size on academic performance, retention, morale, vandalism, student behavior, parent involvement, and efficient use of time?
- How can technology best be used to support teaching and learning? Are there counterproductive uses of technology for learning? To what extent is time wasted on engaging but insignificant material? What strategies and methods are most productive?
- Are different uses of technology more productive for different subjects? How can technology be used to help students acquire the essential knowledge and skills in mathematics? In English? In history, and other academic subjects?

KEEP SCHOOLS OPEN LONGER TO MEET THE NEEDS OF CHILDREN AND COMMUNITIES

- Beyond a sound grounding in academics, what do students need to learn to be effective workers and citizens? How can schools and other organizations working with schools structure time beyond the academic day to help students acquire the knowledge, skills, and habits they need? How would we characterize quality time in before-and-after school programs? What can we do in extended school programs to help students become motivated, life-long learners?
- What effect do extended school hours have on rates of crime and delinquency and on the safety of youth? What are the effects of a broader array of academic and social services on the fabric of the community?
- What kinds of homework contribute most to student learning? Are some kinds of activities students could do outside of school more productive than others? Are different kinds of independent work more productive in some subjects (e.g. mathematics, science, history) than others?
- How can teachers make and keep the link between work done inside and outside the classroom? What can teachers do in class to capitalize on the work students do at home so that students see the relevance of their independent work?
- Given the fact that today's parents do have less time to spend with their children, how can that time be used most productively to help their children?
- What barriers exist at the federal, state, and local levels to prevent or frustrate the integrated delivery of health and social services to students? What policies are required to bring necessary services to students? How can the various agencies involved be held accountable?

GIVE TEACHERS THE PROFESSIONAL TIME AND OPPORTUNITIES THEY NEED TO DO THEIR JOBS

- How much time do teachers need to translate the high academic standards currently being set into effective classroom practice? How can teachers best be supported in their efforts to restructure the teaching and learning environment to support the learning of all students to

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high levels? What do they need to learn, both in subject matter and pedagogy?

- To what extent are schools asking teachers to cover more material than is possible in the time available? What is the range of decisions teachers make in selecting what to include and what to leave out? What effects do those decisions have on student motivation and performance?
- *Research* has found that it often takes a long time for teachers to learn how to use technology in ways that support student learning of higher-order thinking skills. Research also has found that most teachers learn how to use technology on their own, with little assistance from schools. How much less time would be required for teachers to become effective in using technology if (a) they had a thorough understanding of the content and structure of their disciplines and (b) they were given expert guidance in using technology productively?
- How much time do teachers spend on non instructional tasks? What options are there for paraprofessionals?
- How much time and what kinds of programs will it take to educate teachers in subject matter to the level of world class standards? What can we learn from teacher education programs abroad?
- How do the national standards and the curriculum of other countries shape the selection, education, certification, and professional development of teachers?
- How and when do teachers in other countries learn what they need to learn to be effective? What is the nature of preservice education? How and what do they learn? What is the nature of on-the-job learning? How and what do they learn?
- How much money is actually spent on professional development in this country? What do states, school districts, schools, and individual teachers actually spend and for what? How could that money be reallocated to support an integrated approach to professional development?

SECTION III

APPENDICES

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